

Pine Nut Land Health Project

FINAL ENVIRONMENTAL ASSESSMENT

DOI-BLM-NV-C020-2013-0017-EA

U.S. Department of the Interior
Bureau of Land Management
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Sierra Front Field Office
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It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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1.0 INTRODUCTION

1.1 Background

The Bureau of Land Management (BLM) Carson City District, Sierra Front Field Office is proposing a 24,564 acre¹ land health project in the Pine Nut Mountains, located in Douglas, Lyon and Carson City Counties, Nevada (Figures 1 & 2). The Pine Nut Land Health Project (Project) would be implemented over a 10 to 15 year period to protect, maintain and restore ecologically diverse, properly functioning and resilient native plant communities.

Vegetation management treatments are needed in the Pine Nut Mountains to restore ecological balance, diversity and resilience to plant communities and reduce hazardous fuels to protect people, property, infrastructure and resources from severe wildfire. Wildlife habitat quality is diminishing due to woodland expansion and is threatened by heavy accumulations of fuels that greatly increase the potential for large, high-intensity wildfires. Historically, periodic wildfires maintained a healthy balance of vegetation types and prevented fuels from accumulating; however, the existing patterns of vegetation are not conducive to favorable effects from fire without the intervention of proposed treatments. Hazardous fuels currently need to be managed to protect vegetation from uncharacteristic, severe wildfire.

Altered disturbance regimes and climate change have resulted in major changes in plant community compositions. Since the 1860's, many bunchgrass and sagebrush-bunchgrass (*Artemisia sp.-Poaceae sp.*) communities, which dominated the Intermountain West, have shifted to pinyon-juniper woodlands (*Pinus monophylla-Juniperus osteosperma*) or introduced annual dominated communities (West 1984, Miller et al. 1994). Studies show that the expansion of pinyon-juniper has more than tripled in the areas dominated by pinyon-juniper woodlands within the last 150 years. Although pinyon-juniper woodlands have increased dramatically in the last 150 years, they currently occupy far less than they are capable of under current climatic conditions (Miller & Tausch, 2001). The increasing dominance of pinyon-juniper within portions of the Pine Nut Mountains is apparent from aerial photography and presence of young pinyon-juniper expanding into sagebrush communities where soil type indicates no or very few trees should exist. Woodland expansion affects soils, vegetation structure and composition, water, nutrient and fire cycles, forage production, and plant and wildlife biodiversity.

Studies conclude that barring some major environmental change or management action, trees will continue to dominate most of the sites favorable to their expansion. This continued tree dominance could result in a stand replacement wildfire with catastrophic consequences because of continuous tree canopy. Studies show that in dense pinyon-juniper woodlands, the ability of the understory to respond after a fire is dramatically reduced and potentially opens the site to invasion by exotics. Any treatments or rehabilitation of these areas could be difficult and costly.

¹ In this document, the term "Project area" refers to the site-specific treatment units (24,564 acres) described in Section 2.1.1 (Figure 2). The term "planning area" refers to the larger planning area (Pine Nut Mountains, 397,899 acres) used in identifying suitable and priority treatment areas, determining likely resources that may occur in the Project area, and for the cumulative effects study area (Figure 11) (Section 5.0).

An increase in tree dominance results in a loss of understory vegetation, and fires in dense pinyon-juniper can be extremely difficult to control and very damaging to healthy woodlands, sagebrush, and herbaceous vegetation. Goals of pinyon-juniper management include an attempt to restore ecosystem function and a more balanced plant community that includes shrubs, grasses, and forbs, and to increase ecosystem resilience to disturbances. Mule deer (*Odocoileus hemionus*), pinyon jays (*Gymnorhinus cyanocephalus*), mountain chickadees (*Poecile gambeli*), and scrub jays (*Aphelocoma californica*) depend on woodland landscapes that have a more open canopy and park-like structure with a robust understory of forbs, grasses, and shrubs. In highly dense pinyon-juniper stands, the understory is eliminated over time.

The spread of pinyon-juniper may also be a contributing factor in decreasing water availability (both limiting streamflow and shallow groundwater). Riparian vegetation communities would respond to increased water availability by expanding their distribution and improved health. The health of riparian areas is important to maintaining quality wildlife habitat on the landscape. Riparian hardwoods such as aspens (*Populus tremuloides*) and cottonwoods (*P. Trichocarpa*) are vulnerable to intense fire, although they can survive lower-intensity fires, and reducing heavy fuel loads in riparian areas can significantly lower the risk of wildfire. Management guidelines recommend removal of conifers within and adjacent to aspen and cottonwood stands (Bartos 2001, Shepperd 2006). Control and/or reduction in the density and extent of pinyon-juniper in the watershed would benefit the riparian community. Healthy springs/wet meadows support abundant and diverse forbs and insect populations that Bi-State sage-grouse^{2,3} (*Centrocercus urophasianus*) chicks are critically dependent on.

This final environmental assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA) and is in compliance with applicable regulations and laws passed subsequently, including the President's Council of Environmental Quality Regulations (CEQ), U.S. Department of Interior requirements, and guidelines listed in BLM Manual Handbook H-1790-1. This final EA analyzes the potential environmental impacts of the Proposed Action and Alternatives, and documents public participation as well as the decision-making process. An EA is intended to be an overview of environmental concerns, not an exhaustive study of all environmental issues.

1.2 Purpose and Need

The purpose and need of the proposed Project is to improve the health and resiliency of vegetation in the Pine Nut Mountains. The Project would:

- Restore and maintain sagebrush habitat;
- Restore and maintain riparian plant communities;
- Restore and maintain wet meadows and springs;
- Protect and enhance historic pinyon-juniper woodland habitat;

² In this document the terms "sage-grouse" and "Bi-State sage-grouse" are used synonymously. On March 23, 2010 the U.S. Fish and Wildlife Service (FWS) determined that the Bi-State sage-grouse, known to occur in the Project area, is a distinct population segment (DPS) of the greater sage-grouse.

³ On October 28, 2013, the FWS issued a 12-month petition finding, proposed rule in the *Federal Register* (46889, Vol. 78 No. 208) for the proposed listing of the Bi-State sage-grouse as threatened, and designation of critical habitat (46862 Vol. 78 No. 208) under the Endangered Species Act (ESA) (FWS 2013).

- Reduce the potential of large-scale high severity wildland fire;
- Provide for public and firefighter safety and protection of property and infrastructure; and
- Provide woodland products to the public, tribes and commercial entities.

1.3 Scoping and Issues Identification

On March 25, 2013, the Project was considered by an interdisciplinary team. The following issues were discussed:

- What treatment units would require a Class III inventory for the National Historic Preservation Act (NHPA)?
- What treatment units will require pre-implementation botanical surveys based on likely occurrences of BLM sensitive plant species?
- What project design features will be required (such as seasonal restrictions) due to treatment units occurring in preliminary priority habitat (PPH) for the Bi-State sage-grouse?
- How can efforts by the National Resources Conservation Service (NRCS) on adjacent private lands (including lands under the jurisdiction of the Bureau of Indian Affairs) be coordinated?

On April 3, 2013, the BLM initiated a 30-day public scoping period. Letters were sent out to the Project mailing list (approximately 96 residents, other organizations and agencies) and notification was provided to the regional media. Notification to State agencies was provided through the Nevada State Clearinghouse. Information including maps was made available on the Project's website. An article appeared in the *Nevada Appeal* on April 4, 2013, April 9, 2013 and April 13, 2013, and in *The Record-Courier* on April 5, 2013. On April 11, 2013 the BLM hosted a workshop at the Carson City District Office. A Project overview was provided to participants; maps were available for review and specialists were available for questions. Fourteen people attended the two-hour workshop. The public scoping period closed on May 2, 2013. The BLM received 12 comments on the Project from the public and other agencies. A presentation on the Project was made to the Washoe Tribe of Nevada and California Council meeting on June 14, 2013, and to the Yerington Paiute Tribal Council meeting on July 8, 2013. See Section 6.1 for information on public involvement during review of the draft EA.

1.4 Decision to be Made

The Authorized Officer would decide whether to implement the vegetative treatments as described in the Proposed Action.

The Authorized Officer's decision would not change the allocation of forage for wild horses and livestock grazing; nor would the Authorized Officer's decision reduce or close allotments to livestock grazing.

1.5 Land Use Plan Conformance Statement

The Proposed Action and Alternatives described below are in conformance with the Carson City Field Office Consolidated Resource Management Plan (2001):

- FIR-2.1 Restore fire as an integral part of the ecosystem, improve the diversity of vegetation and to reduce fire hazard fuels;
- FOR-1.1 Forest and woodland management will be based on the principles of multiple use, sustained yield, and ecosystem management;
- RIP-2.1 Protect and maintain existing and potential fisheries and riparian areas in good or better condition (proper functioning condition);
- WLD-2.4 Maintain and improve wildlife habitat, including riparian/stream habitats, and reduce habitat conflicts while providing for other appropriate uses; and
- WLD-6.4 Wildlife habitat improvement projects will be guided, in the most part, by provisions in activity level plans such as habitat management plans, or interdisciplinary activity plans. These plans will be developed through consultation with interested parties and will be coordinated with livestock, wild horse, and wilderness plans. These plans will be focused on rehabilitation and improvement of wildlife habitat through protective fencing, water developments, grazing management, and vegetation treatments.

This final EA is in conformance with the 1991 Record of Decision *Vegetation Treatment on BLM Lands in Thirteen Western States, and the Final Environmental Impact Statement Vegetation Treatment on BLM Lands in Thirteen Western States*, which is hereby incorporated by reference.

1.6 Relationships to Statutes, Regulations, and Other Plans

Executive Orders, Laws, Regulations, and State Statutes

- Migratory Bird Treaty Act (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989);
- Executive Order 13186—Responsibilities of Federal Agencies to Protect Migratory Birds (2001);
- National Environmental Policy Act of 1969;
- The National Fire Plan, Review and Update of the 1995 Federal Wildland Fire Management Policy (January 2001);
- Protecting People and Natural Resources, A Cohesive Fuels Treatment Strategy (2006);
- The Bureau of Land Management National Sage-Grouse Habitat Conservation Strategy, November 2004;
- Memorandum of Understanding Between the BLM and FWS to Promote the Conservation of Migratory Birds – BLM 2010-110;
- National Historic Preservation Act (16 USC 470f), implemented through the *State Protocol Agreement between BLM Nevada and the Nevada State Historic Preservation Office for Implementing the National Historic Preservation Act* (2012) under the provisions of the National Programmatic Agreement between the BLM and the Advisory Council on Historic Preservation; and

- Consultation and Coordination with Indian Tribal Governments – EO 13175.

Other Plans

The National Fire Plan, Review and Update of the 1995 Federal Wildland Fire Management Policy (January 2001) – states in part: “Fire Management and Ecosystem Sustainability - The full range of fire management activities will be used to help achieve ecosystem sustainability, including its interrelated ecological, economic, and social components.”

This final EA is consistent with *Protecting People and Natural Resources, A Cohesive Fuels Treatment Strategy* (2006). The mission of the strategy is to lessen risks from catastrophic wildfires by reducing fuels build-up in forests and woodlands and by reducing threats from flammable invasive species on rangelands in the most efficient and cost effective manner possible.

This final EA is consistent with the Nevada Community Wildfire/Hazard Assessment Project – Douglas County (2005), which assessed wildfire risks to Douglas County communities and recommended risk mitigation projects. The Project scored Pine Nut Creek in the High Hazard category and Ruhenstroth in the Moderate Hazard category.

The *BLM National Sage Grouse Habitat Conservation Strategy* (BLM IM 2005-024) calls for managing public lands in a manner that would maintain, enhance, and restore sage-grouse and sagebrush habitats while continuing to provide for multiple uses of lands under BLM stewardship. Implementation of BLM’s national sage-grouse strategy complements and expands the on-going efforts by the Sierra Front Field Office to conserve sagebrush ecosystems on public lands administered by the BLM for the benefit of sage-grouse and other wildlife species.

The *Greater Sage-Grouse Conservation Plan for Nevada and Eastern California* states management actions that sustain the health of rangelands and the quality of sagebrush habitat are the highest and immediate priorities (The Nevada Governor’s Sage-Grouse Conservation Team 2004). The *Bi-State Sage-grouse Conservation Plan* states pinyon-juniper encroachment is an existing and foreseeable risk affecting sage-grouse habitat quality and quantity in the Pine Nut Population Management Unit (PMU) and impacts are likely to become permanent and irreversible without appropriate management (Appendix L in *Greater Sage-Grouse Conservation Plan for Nevada and Eastern California*). It identifies tree removal as a conservation action for the Pine Nut PMU.

The 2012 Bi-State Action Plan *for the Conservation of the Greater Sage-grouse Bi-State Distinct Population Segment* is designed to achieve conservation of sustainable habitats for the Bi-State DPS by protecting un-fragmented habitat, restoring historic habitat that has been impacted by pinyon-juniper encroachment and wildfire, and reestablishing habitat connectivity (Bi-State Technical Advisory Committee 2012).

2.0 ALTERNATIVES

2.1 Description of Alternatives

2.1.1 *Alternative A: Proposed Action*

The Proposed Action is to implement up to 24,564 acres of vegetation treatments in strategically located treatment units in the Pine Nut Mountains as described below to meet land health objectives (Figure 2). The proposed vegetation treatments may be implemented individually or in combination depending on site conditions within the treatment units; if it is determined that a type of treatment is not appropriate for a specific site within a treatment unit it would not be implemented on that site. It is anticipated that the Project would be implemented over a 10 to 15 year period; however, the time to complete the Project would ultimately depend on funding and environmental conditions. Most treatments are anticipated to be implemented in late summer and fall.

2.1.1.1 *Implementation Prioritization*

To the extent possible resources will be leveraged and integrated across multiple programs and with other agencies and partners to improve implementation efficiency. Generally implementation would be prioritized based on funding source, objectives, expected beneficial effects, cost and ease of treatments. Areas within PPH (Figure 9) would be the highest priority for treatment for non-fire funding (by priority: 1 - Mill Canyon; 2 - Bald Mountain; 3 - Mount Siegel, 4 - Crest, 5- Slaters). Areas directly adjacent to designated at risk wildland-urban interface (WUI) would be the highest priority for treatment for fire funding with areas adjacent to community associated infrastructure the second priority (by priority: 1 - Ruhenstroth; 2 - Pine Nut; 3 - Sunrise; 4 - Mineral). Once treatment is complete in the highest priority areas the remaining treatment areas would be evaluated and prioritized annually taking into account objectives, expected beneficial effects, access, terrain, vegetation composition, vegetation condition and visual disturbance.

2.1.1.2 *Treatment Units*

The following is a summarization of each treatment unit:

- Bald Mountain (3,599 acres): Treatment unit located along the southern most crest of the Pine Nut Mountains. The unit is located within PPH and occurs in brood-rearing/summer habitat in the Bald Mountain area. The unit was designed to include as much of the sage-grouse total summer (June – July) utilization distribution⁴ (UD) as feasible.

This unit includes the top ends of South Camp Canyon, Minnehaha Canyon, and Mill Canyon. The upland vegetation community is dominated by pinyon-juniper trees to the south of Bald Mountain proper and mountain mahogany (*Cercocarpus ledifolius*) to the north of Bald Mountain and into Mill Canyon. The riparian systems in the tree dominated drainages no longer express surface water. South Camp Spring and China Spring are examples of diminishing available surface water. The head of the Mill Canyon channel is

⁴ Utilization distribution (UD) is a method of constructing a species distribution based on random samples of locational observations, often over different points in time.

dry and does not appear to be maintained by flowing water. Upland vegetation species dominate the channel bottoms and no riparian obligate species have been observed. The riparian systems in Mill Canyon are in reasonable condition, however evidence of historical grazing and mining use are seen in active headcuts lower in the drainage, these make Mill Canyon susceptible to erosion during high flow events. Barren areas persist from past heavy grazing of the grass/forb/sedge community, these areas and exasperate headcuts in the channel. The healthy overstory of aspen groves and patches of willows are an important stabilizing element on this system. Surface water appears to be perennial with no signs of recent high flow events. Streamflow originates in the Buena Suertes Spring enclosure. Additional inflow comes from tributary drainage. Riparian habitat, including aspen groves and patches of willows, continues the length of the drainage below Buena Suertes Spring to Blossom Canyon.

- Brunswick (308 acres): Treatment unit located on both sides of the Brunswick Canyon Road. Unit is strategically located to reduce the potential for large-scale high severity wildland fire, improve travel safety and would improve woodland health. Pinyon-juniper density varies from low to high. Desired shrub and herbaceous vegetation is present on portions of the unit and not on others. Where the understory is present pinyon-juniper trees are in the process of increasing in dominance. Forest insect and disease activity is high.
- Buffalo Canyon (159 acres): Treatment unit located in the 2011 Ray May Fire. Numerous dead standing trees are present. The BLM portion of the fire was seeded immediately following the fire with limited success initially. Treatment to reduce dead fuel loading. Through soil scarification and seeding to reestablish desired shrub and herbaceous vegetation.
- Bull Canyon (176 acres): Treatment unit located in a stretch of Bull Canyon with management concerns over the downward trend, documented most recently in August 2002, toward reduced streamflow and declining shallow groundwater supplies. There is currently no riparian vegetation, however there is evidence of cottonwood trees previously growing in the drainage bottom. The unnamed spring, mid-drainage, is dry. Pinyon-juniper trees cover much of the upper watershed and appear to be spreading into lower elevation areas. Many patches of dead and dying trees are present in the drainage.
- Cherokee (233 acres): Treatment unit is located upwind from a low density residential area and directly adjacent to Pine Nut Road, a primary access road for the west slope of the Pine Nut Mountains. Pinyon-juniper density varies from moderate to high. Desired shrub and herbaceous vegetation is present on portions of the unit and not on others. Where the understory is present pinyon-juniper trees are in the process of increasing in dominance. Forest insect and disease activity and associated tree mortality is high.
- Como (872 acres): Treatment unit includes two discontinuous sub-units located along the Fort Churchill to Wellington Backcountry Byway in the vicinity of the historic Como mining district. The western sub-unit is in moderate to high density pinyon-juniper which would be thinned. Forest insect and disease activity and associated tree mortality is high.

The east sub-unit is in the 2008 and 2012 Como Fires where numerous dead standing trees are present which would be cut. Treatment to reduce dead fuel loading. Through seed-bed preparation and seeding to reestablish desired shrub and herbaceous vegetation.

- Crest (2,865 acres): Treatment unit located along the central crest of the Pine Nut Mountains. The unit is located in PPH and runs roughly north to south from breeding/nesting habitat in the Mill Canyon area in the north down to brood-rearing/summer habitat in the Mount Siegel and Bald Mountain areas in the south. Most sage-grouse move in a southerly direction after the breeding period to the Mount Siegel area by late-June. This unit captures crucial habitat serving as seasonal movement corridor for the Bi-State sage-grouse population in the Pine Nut PMU. Average distance to the lek (in the Mill Canyon area, not in a treatment unit) for June was over 23 miles, which is a substantial increase from May (nine miles from the lek). Based on data, sage-grouse appear to travel relatively long distances to summer and fall habitat. During July the average distance to the lek was over 25 miles. Seasonal migration patterns appear to slow at this time and remain localized in the south through September. Pinyon-juniper encroachment expanding uphill toward the crest of the Pine Nut Mountains is reducing the quality and dimensions of the sage-grouse movement corridors.

There are three perennial springs/seeps along the spine of the Pine Nut Mountains, above 7,600 feet elevation. These springs or seeps are overcrowded with too high a density of pinyon-juniper trees to currently have much value. Additionally, there are a few dry meadows near Slaters Mine and Upper Buckeye Creek. Pinyon-juniper encroachment appears to be expanding uphill toward the crest of the Pine Nut Mountains, reducing the sage-grouse habitat corridor telemetry has shown their use.

- Eldorado Canyon (778 acres): Treatment unit includes nine discontinuous sub-units located within the Eldorado Canyon watershed. In general, the riparian vegetation community in Eldorado Canyon appears to be in good condition. The community is dominated by a variety of mixed age class willows and occasional large old cottonwoods. The shrub, forb and aquatic components of the community are also diverse and healthy. However, channel stability appears to be variable. The upper canyon exhibits signs of large flow events that caused substantial lateral and vertical channel movement. High eroded banks and small, active headcuts are observed in several locations. Streamflow hydrology is characterized as intermittent since streamflow appears, disappears, and reappears throughout the canyon. Surface flow regimes and groundwater supplies appear to be adequate to support a healthy and vigorous riparian community. However, pinyon-juniper expansion in the watershed may pose a threat to the existing water supply. Dense stands of tree cover substantial areas of the watershed. Patches of dead trees are observed throughout the watershed. In addition, young pinyon age classes are scattered throughout the uplands and appear to be colonizing lower elevations of the watershed as well as the drainage bottom, and its tributaries. Forest insect and disease activity is high.
- Hacket Canyon (133 acres): Treatment unit includes four discontinuous sub-units located in three drainages on the north slope of the Pine Nut Mountains. Streamflow is

intermittent. The riparian system appears to be in good condition; however the upland vegetation is increasing in density into the riparian corridor.

- Illinois (966 acres): Treatment unit is located along the Sunrise Pass Road and two parallel transmission line corridors. It is strategically located to reduce the potential for fire damaging area transmission lines, reduce the potential for a large-scale high severity wildland fire and improve travel safety and would improve woodland health and area aesthetics. Pinyon-juniper density varies from low to high. Desired shrub and understory vegetation is present on portions of the unit and not on others. Where the understory is present pinyon-juniper trees are in the process of increasing in dominance. If this situation is not addressed fuel loads would increase, understory vegetation would be stressed and depleted, and the stage would be set for a large-scale high severity wildland fire.
- Illinois Canyon (187 acres): Treatment unit located in Illinois Canyon, a tributary to Eldorado Canyon. Pinyon-juniper density varies from low to high. Desired shrub and understory vegetation is present on portions of the unit and not on others. Where the understory is present, pinyon-juniper trees are in the process of increasing in dominance. Patches of dead pinyon are observed throughout the drainage.
- Lyon (969 acres): Treatment unit located on the east slope of the Pine Nut Mountains below Lyon Peak between two previously completed vegetation treatment projects, Mill Canyon and Buckskin. Unit located in a potential migration corridor for Bi-State sage-grouse. Pinyon-juniper density varies from low to moderate. Desired shrub and herbaceous vegetation is present on portions of the unit and not on others. Where the understory is present pinyon-juniper trees are in the process of increasing in dominance.
- Mill Canyon (5,676 acres): Treatment unit located in and around Mill, Mineral and Bull Canyons on the low northwestern slope of the Pine Nut Mountains. This unit occurs in PPH and is near the only known active lek in the Pine Nut Mountains (not in a treatment unit). This unit occurs in breeding, nesting, and early brood-rearing habitat. This unit was designed to include as much of the sage-grouse total spring (March – May) UD as feasible.

The Upper Mill Canyon watershed has limited riparian vegetation, dependent on ephemeral flow, limited to a sparse scattering of stunted cottonwoods adjacent to the channel. No surface water is visible. Pinyon-juniper trees are increasing in number in the upper watershed, as seen in many areas with numerous younger age classes.

Gregs Cabin Meadow Spring is located at the upper end of Bull Canyon in the larger Mill Canyon treatment unit. The spring provided flow in the past, but has been dry for over 10-years (as documented in 2002). The encroachment of closed canopy upland vegetation into the riparian community is a concern.

- Mineral (501 acres): Treatment unit is located in a basin upwind of the Sunrise Pass Road and two parallel transmission line corridors. It is strategically located to reduce the

potential for fire damaging area transmission lines and reduce the potential for a large-scale high severity wildland fire. Pinyon-juniper density varies from low to moderate. Desired shrub and understory vegetation is present on portions of the unit and not on others. Where the understory is present pinyon-juniper trees are in the process of increasing in dominance. If this situation is not addressed fuel loads would increase, understory vegetation would be stressed and depleted and the stage would be set for a large-scale high severity wildland fire.

- Mineral Valley (163 acres): The Mineral Valley treatment unit is in a drainage on the west slope of Mount Como. The encroachment of upland vegetation into the drainage's riparian community is a concern.
- Mount Siegel (2,191 acres): Treatment unit located along the south-central crest of the Pine Nut Mountains. Treatment unit located in PPH and occurs in brood-rearing/summer habitat in the Mount Siegel area. This unit was designed to include as much of the sage-grouse total summer (June – July) UD as possible.

The treatment unit is at the top of three watersheds, Upper Buckeye Creek, Pine Nut Creek, and Smith Valley-Artesia Lake. There are three identified water sources between 7,400 and 8,600 feet. These springs or seeps are currently not overcrowded with pinyon-juniper trees and have a high value to animals. There is approximately 65 acres of dry meadows, with some surface water expression. Approximately 40 acres of these meadow systems are protected by exclosures. The majority of the dry meadows appear to be relic systems that developed during higher precipitation conditions. Sage-grouse telemetry data has shown continued use through the dry meadows. For the smaller dry meadow systems, stringers of meadow-type vegetation such as wire grass up to three acres in size and pinyon-juniper encroachment is a concern for water availability, soil moisture and wildlife habitat.

- Oreana (31 acres): Treatment unit located in a drainage that runs east off Oreana Peak and offers an opportunity to apply vegetation treatment to the upland vegetation communities that are in the drainage bottom in order to protect and enhance the riparian system. The riparian system consists of willow and aspen stands, and cottonwood at lower elevations, with some pinyon-juniper encroachment.
- Pine Nut (620 acres): Treatment unit is located directly adjacent to moderate density residential areas and along the primary access/egress road for the residential areas. The risk of high intensity damaging wildfire is high. Moderate density pinyon-juniper woodland. The BLM, the East Fork Fire and Paramedic Districts and local residents are concerned that in the event of an intense wildfire, residential areas could be difficult to defend, property damage could be substantial, access/egress could be compromised and the lives of the public and firefighters could be at risk. Four hundred fifty-four acres of the treatment unit had been treated previously in 2005 and 2009. The BLM is proposing to maintain the original treatment areas as well as expand treatment outside of original treatment boundaries.

- Pine Nut Valley (252 acres): Treatment unit located along the main road through Pine Nut Valley. It is strategically located to reduce the potential for large-scale high severity wildland fire and improve travel safety, woodland health and area aesthetics. Pinyon-juniper density is high with a heavy component of dead down and standing trees. Desired shrub and herbaceous vegetation is limited. Where the understory is present pinyon-juniper trees are in the process of increasing in dominance. Forest insect and disease activity is high.
- Pipeline Canyon (32 acres): Treatment unit in Pipeline Canyon on the east slope of the Pine Nut Mountains. The perennial flow throughout the drainage offers an opportunity to apply vegetation treatment to the upland vegetation communities that are susceptible to wildfire in order to protect a riparian system that was determined to be in proper functioning condition in 2002. The middle segments of Pipeline Canyon, upstream of the diversion into an irrigation ditch, have healthy and diverse riparian vegetation. Fuel loading in streamside zones is not as heavy compared to other areas.
- Ruhenstroth (189 acres): Treatment unit is located directly adjacent to a moderate density residential area. The risk of high intensity damaging wildfire is high. Moderate to high density pinyon-juniper woodland. The BLM, the East Fork Fire and Paramedic Districts and local residents are concerned that in the event of an intense wildfire, residential areas could be difficult to defend, property damage could be substantial and the lives of the public and firefighters could be at risk.
- Ruhenstroth Well (132 acres): Treatment unit includes two discontinuous sub-units located along two two-track roads that run south from Pine Nut Road into the area of Ruhenstroth Well. It is strategically located to reduce the potential for fire damaging area residences. Pinyon-juniper density varies from low to high. Desired shrub and understory vegetation is present on the majority of the unit. Where the understory is present pinyon-juniper trees are in the process of increasing in dominance. The area was previously treated in the 1960's to reduce tree cover and enhance shrub and herbaceous vegetation.
- Slaters (721 acres): Treatment unit located along the central crest of the Pine Nut Mountains. The unit is located in PPH and runs roughly north to south from breeding/nesting habitat in the Mill Canyon area in the north down to brood-rearing/summer habitat in the Mount Siegel and Bald Mountain areas in the south. Most sage-grouse move in a southerly direction after the breeding period to the Mount Siegel area by late-June. This unit captures crucial habitat serving as seasonal movement corridor for the Bi-State sage-grouse population in the Pine Nut PMU. Average distance to the lek (in the Mill Canyon area, not in a treatment unit) for June was over 23 miles, which is a substantial increase from May (nine miles from the lek). Based on data, sage-grouse appear to travel relatively long distances to summer and fall habitat. During July the average distance to the lek was over 25 miles. Seasonal migration patterns appear to slow at this time and remain localized in the south through September. Pinyon-juniper encroachment expanding uphill toward the crest of the Pine Nut Mountains is reducing the quality and dimensions of the sage-grouse movement corridors.

There are three identified water sources along the spine of the Pine Nut Mountains, above 8,000 feet elevation. These springs or seeps are overcrowded with too high a density of pinyon-juniper trees to currently have much value. Additionally, there are a few dry meadows near Slaters Mine and Upper Buckeye Creek.

- Stone Spring (13 acres): Treatment unit located below Lyon Peak on the east slope of the Pine Nut Mountains. Young age class trees have established in the watershed above and around the spring. It appears closed canopy tree cover in the watershed is contributing to low flow volume and similar to other springs in the Pine Nut Mountains. Stone Spring is in a drying trend, changing from perennial to intermittent flow.
- Sunrise (1,970 acres): Treatment unit is located along the Sunrise Pass Road and two parallel transmission line corridors. It is strategically located to reduce the potential for fire damaging area transmission lines, reduce the potential for a large-scale high severity wildland fire and improve travel safety and would improve woodland health and area aesthetics. Pinyon-juniper density varies from low to high. Desired shrub and herbaceous vegetation is present on portions of the unit and not on others. Where the understory is present pinyon-juniper trees are in the process of increasing in dominance. If this situation is not addressed fuel loads would increase, understory vegetation would be stressed and depleted and the stage would be set for a large-scale high severity wildland fire.
- Sunrise Pass (301 acres): Treatment unit includes three discontinuous sub-units located along the Sunrise Pass Road and two parallel transmission line corridors. It is strategically located to reduce the potential for fire damaging area transmission lines and improve travel safety and would improve woodland health area aesthetics. Pinyon-juniper density is high with a heavy component of dead down and standing trees. Desired shrub and herbaceous vegetation is limited. Where the understory is present pinyon-juniper trees are in the process of increasing in dominance. Forest insect and disease activity is high.
- West Barton Spring (527 acres): Treatment unit includes two discontinuous sub-units located below Rawe Peak on the north slope of the Pine Nut Mountains. The riparian area within the West Barton Spring exclosure was in poor condition in 2002, and determined to be functional-at-risk. The area exhibits a perennial spring with minimal flow, erosion or deposition, with an observed drying trend. The associated meadow/riparian community is invaded by upland vegetation such as sagebrush and pinyon-juniper trees. Compaction of soil is occurring due to wild horse use within and outside the exclosure. Riparian/meadow vegetation communities appear unhealthy. Sedge and rush species are the dominant species present within the exclosure. There is some tule grouped together toward the lower end of the exclosure, suggesting standing water in that small area. However, drying within the exclosure is apparent by the reduction of meadow species on exclosure edges and the invasion of upland plants such as rabbitbrush (*Chrysothamnus viscidiflorus*), single-leaf pinyon, desert peach (*Prunus andersonii*) and sagebrush.

2.1.1.3 Treatment Methods

Specific treatment units have been evaluated to determine the most appropriate treatment method and resource protection measures based on slope, aspect, terrain, soil, vegetation composition, vegetation condition, amount of fuel/biomass needed to be removed, overall access on site, visual disturbance, and proximity to major roads. As depicted in Table 1 and Figure 5, multiple treatment methods may be used in individual units (e.g. Lyon, Sunrise, Ruhenstroth Well). Unit slope and terrain may limit use of mechanized equipment through the entire unit. In areas where use of mechanized equipment is not practical or necessary for treatment objectives, hand treatment would occur. All riparian units would be treated by hand (e.g. Eldorado Canyon, Illinois Canyon). The largest units, ones with the greatest quality habitat for sage-grouse, and on the Pine Nut Mountain crest would be treated by hand (e.g. Crest, Mt. Siegel). This final EA includes analysis of all treatment methods, and considered worst-case impacts in units with multiple treatment methods. Table 1 shows what methods would likely be used in each treatment unit.

Table 1. Proposed Treatment Options.

Treatment Unit	Treatment Method				
	Hand Thinning	Hand Cutting	Mechanical Mastication	Mechanical Thinning/Removal	Pile Burning
Bald Mountain		X			
Brunswick	X				X
Buffalo Canyon		X		X	
Bull Canyon		X			X
Cherokee	X			X	X
Como	X	X		X	X
Crest		X			
Eldorado Canyon		X			X
Hacket Canyon		X			X
Illinois	X	X	X	X	X
Illinois Canyon		X			X
Lyon		X	X		X
Mill Canyon		X			
Mineral	X	X	X	X	X
Mineral Valley		X			X
Mount Siegel		X			
Oreana		X			X
Pine Nut	X		X	X	
Pine Nut Valley	X			X	X
Pipeline Canyon		X			X
Ruhenstroth	X		X		
Ruhenstroth Well	X			X	X
Slaters		X			
Stone Spring		X			X
Sunrise	X	X	X	X	X
Sunrise Pass	X			X	X
West Barton Spring		X			X

Summary of Acres By Treatment Method.

Table 2 shows the approximate number of acres to be treated by each treatment method.

Treatment Method	Acres	% of Project Area
Hand Thinning (Selective and Non-Selective Cutting)	19,942	81
Mechanical Mastication	4,622	19
Pile Burning	2,000	8
Seeding	3,000	12

The following is a summary of explanations as to why and where each treatment method has been proposed and a description of what each treatment method entails.

- Hand Thinning (Selective Cutting): Hand thinning of pinyon-juniper trees would occur on forestland ecological sites that range from pinyon-juniper woodlands with little desired understory vegetation to woodlands with remnant desirable understory vegetation that is at risk of being depleted from the site.

Shrubs (brush) may be thinned at selected sites where deemed necessary to reduce fuel continuity and fire intensity potential. These sites are generally within the wildland urban interface in the Pine Nut Road and Ruhenstroth areas and along the Sunrise Pass Road. Where deemed necessary to meet fuels management objectives, brush spacing would be adjusted by treating up to 60 percent of the brush in a mosaic pattern. No brush would be cut in the Mill Canyon area or along the crest of the Pine Nut Mountains.

Treatment would be conducted by personnel on foot using hand tools and chainsaws. Crew size would vary but typically ranges from two to 20 people. Some trees would be cut, while others would be left standing. Thinning trees in dense stands reduces fuel continuity and vegetative competition. Tree health would be promoted by reducing competition for water and nutrients. The size and overall health of the remaining trees would increase. The thinning treatment would target primarily smaller trees, but age class distribution would be taken into consideration to ensure the long term viability of the population. Typically under this treatment the larger older trees would be retained. Where applicable trees would be retained in small groups with openings between the groups. Areas with healthy understory vegetation would be the target locations for openings. Trees cut could include dead, diseased or healthy trees depending on site evaluation and treatment objectives. It may be necessary to cut healthy trees where there are no dead or diseased trees to meet resource objectives. Cut trees may be removed by non-mechanical methods, chipped with a mechanical chipper working on an existing road, lopped and scattered and/or piled and burned, based on site evaluation and objectives. Stump height would be less than six inches and any residual biomass would not exceed two feet in depth.

- Hand Cutting (Non-Selective Cutting): Hand cutting of pinyon-juniper trees would occur on rangeland ecological sites where trees are encroaching into landscapes once dominated by shrubs and herbaceous vegetation and into riparian areas. These sites range

from open sagebrush sites with scattered young pinyon-juniper trees to sagebrush sites where young pinyon-juniper woodlands are threatening to deplete desirable understory vegetation to riparian sites with pinyon-juniper trees encroaching into riparian vegetation such as aspen, cottonwood and willow.

Treatment would be conducted by personnel on foot using hand tools and chainsaws. Crew size would vary but typically ranges from two to 20 people. All trees would be cut regardless of size. Cut trees may be removed by non-mechanical methods, chipped with a mechanical chipper working on an existing road, lopped and scattered and/or piled and burned, based on site evaluation and objectives. Stump height would be less than six inches and any residual biomass would not exceed two feet in depth.

- **Mechanical Mastication:** Pinyon-juniper trees and shrubs (brush) would be removed from both woodland and rangeland ecological site types by a mastication process which grinds up woody plant material. Due to mechanical limitations of the equipment, mastication treatments are limited to areas with less than a 30 percent slope. Mastication treatments are typically used to restore ecological balance in plant communities, provide for increased plant diversity by reducing a dominant species, stimulate new plant growth and/or reduce fuel continuity and potential fire intensity. The pre-treatment condition of the plant community would be considered relative to the management goals. Plant communities in any condition (no understory to intact understory) may be treated.

Trees/brush would be ground with an attachment mounted on machinery such as front-end loaders, tractors, excavators, skidders etc., the machine may have rubber tires, rubber tracks or metal tracks. Trees could be thinned or all cut depending on objectives. Thinning specifications would be similar to Hand Thinning specifications above. Stump height would be less than six inches and the products of grinding would not exceed two feet in depth.

Mechanical equipment would be parked and serviced daily on three to four small (less than ¼ acre) road accessible staging areas located on BLM land on the units designated for mechanical treatment. It can be expected that the vegetation and soils in the staging areas would be effected more than the general Project area due to the frequency of equipment activity on the sites.

A general overview of masticating equipment can be found in the Understory Biomass Reduction Methods and Equipment Catalog (USDA Forest Service 2000).

- **Mechanical Thinning/Removal:** Mechanical thinning/removal of pinyon-juniper trees would occur on forestland ecological sites that range from pinyon-juniper woodlands with little desired understory vegetation to woodlands with remnant desirable understory vegetation that is at risk of being depleted from the site. Mechanical thinning/removal would only occur in units designated for the treatment and may not occur on entire units designated for treatment.

Treatment includes the mechanical thinning and/or removal of entire trees or portions of trees for personal use or commercial sale. See Hand Thinning (Selective Cutting) above for description of thinning treatment. Rubber tired/tracked or metal tracked mechanized equipment would be used to cut, either skid or above ground haul, and remove entire trees or portions of trees. Shearing would include separating the tree from the stump, less than six inches from the ground. Once the trees are sheared, they would be skidded or hauled to a designated landing or processing area and be hauled off site.

Mechanical equipment would be parked and serviced daily on (less than ¼ acre) road accessible landings or processing areas located on BLM land on the units designated for mechanical removal. It can be expected that the vegetation and soils on any skid/haul roads or landings or processing areas would be effected more than the general Project area due to the frequency of equipment activity on the sites.

- Pile Burning: Pile burning would be considered as a follow up treatment to hand thinning and hand cutting to treat residual biomass where determined needed to manage surface fuel loading and where other treatment methods are not feasible.

The treatment includes the burning of hand constructed piles of residual biomass (e.g. branches, twigs), piles typically no larger than six feet tall and six feet in diameter, scattered within a treatment area. The number of piles per acre would vary depending on tree density and the treatment prescription. Hand held tools such as flares, drip torches and/or flammable gel packs may be used to ignite piles. Pile burns would be conducted under a burn plan, a site-specific implementation document which is a legal document that provides the agency administrator the information needed to approve the plan and the burn boss with all the information needed to safely and effectively implement the burn. Several factors are considered when determining whether to burn or not and designing a burn plan and implementing a prescribed burn. These factors include location, weather conditions, vegetation types, slope, fuel moisture content, risks to property and structures and potential impacts to air quality and land use. Pile burns would only be conducted in the late fall, winter and spring under low spread potential conditions (e.g. following precipitation, with snow on ground). The objective of pile burning would be to consume 80-100 percent of the piled biomass.

- Seeding: Limited seeding of native species may be conducted as a follow up in any treatment unit(s) where existing herbaceous understory has been compromised and is not sufficient for natural establishment. Seeding treatment includes ground-based or aerial broadcast application of seed. Seeding method to be determined based on terrain, soil type, soil moisture, and seed species.

2.1.1.4 General Treatment Specifications

- BLM specialists would collaborate to design site-specific treatment prescriptions;
- Prescriptions for individual treatment sites may vary somewhat to address specific site characteristics;
- To the extent possible, thinning would be designed to restore a broad variety of seral stages, stand ages, openings and tree clumping;

- Existing roads in the treatment areas would remain open. They would be managed to prevent generation of excessive dust and erosion; and
- If invasive species are found in the Project area after treatment and seeding, the sites would be identified for treatment⁵.

2.1.1.5 Resource Commitments

The following measures would occur to minimize or avoid adverse impacts during Project implementation:

- Any treatment implemented during the nesting season for migratory birds (May 15 – July 15) or raptors (March 1 – August 31) would be surveyed by a qualified biologist prior to any treatment occurring in a specific unit to identify active nests. Surveys would be conducted in the treatment unit plus a 300 foot buffer for migratory birds and a ¼ mile buffer for raptors. If an active nest is discovered/observed, treatment activities should not occur (or resume) until after young birds have fledged or nests are abandoned unless a 300 foot buffer can be provided around active migratory bird nests and a ¼ mile buffer can be provided around active raptor nests;
- There are no known active leks within the Project area; however active leks may be present adjacent to or in the planning area during the life of this Project. If an active lek is located within 3.2 miles of a treatment unit, no treatment activities would occur during the breeding season (March 1 to May 15);
- No treatment activities would occur within known nesting and early brood-rearing habitat (generally within 3.2 miles of an active lek) between March 15 and June 30;
- No treatment activities would occur within the Pine Nut Herd Management Area from March 1 until July 1, generally considered the foaling season;
- Surveys for sensitive plant species would be conducted in mechanical treatment units that have high potential for their occurrence based on soil types; when occupied habitat is located, implementation may be delayed, hand thinning of trees may replace use of mechanized equipment, or the occupied habitat may be delineated as an avoidance/exclusion area;
- Cultural resources evaluated as eligible for the National Register of Historic Places (NRHP) and unevaluated cultural resources identified during implementation of the Project would be avoided. Respect for all cultural resources would be maintained;
- All live aspen, cottonwood and mountain mahogany would be retained;
- Old-growth trees⁶ and trees with obvious signs of wildlife use, such as nest cavities or raptor nests, would be retained;
- Individual old-growth trees would be retained within younger stands unless other resource objectives such as forest health, fuels reduction, and sage-grouse habitat require their removal to meet treatment goals;
- No new roads would be constructed;
- Existing maintained (graded) roads may be improved to facilitate movement of vehicles, equipment or wood products;

⁵ The application of herbicides for treatment of invasive species would be authorized under a separate process.

⁶ Old-growth characteristics include rounded or flat crowns, tree ring analysis indicating age >150 years, and a diameter at root collar >21 inches.

- Areas of public/private property boundaries would be clearly signed during public firewood removal activity;
- Following public firewood removal, any off-road travel routes would be obliterated, all stumps would be cut to a height than of up to six inches, all slash lopped to a height not to exceed two feet in depth and all trash picked up;
- Mechanical treatments would be scheduled to avoid wet soil conditions;
- Staging areas/landings would be minimized by utilizing existing/natural landings where practicable;
- After use any skid trails and staging areas/landings would be restored by restoring the contour and applying mulch and/or seeding where necessary;
- Shredded or cut vegetation would generally be left in place to reduce dust generation, contribute organic matter, obliterate vehicle tracks, stabilize the soil surface, and protect vegetation;
- All equipment moved on and off public land would be free of soil, seeds, and vegetative matter or other debris that could contain or hold seeds;
- The Nevada Energy System Control Supervisor would be notified when treatment activities are occurring in an Nevada Energy right-of-way; and
- All State and federal regulations would be followed.

2.1.1.6 Schedule: Treatment could occur any time of the year but the preferred timing of treatment would be late summer and fall. Based on the availability of funding, staff resources and other priorities, the BLM anticipates that over a 10 to 15 year period, approximately two thousand acres would be treated each year. Treatments would occur on six percent of the planning area over the life of the Project (or 0.7 percent of the planning area, per year).

2.1.1.7 Adaptive Management/Monitoring: The principle of adaptive management would be used as treatments are applied and monitored for effectiveness in meeting Project objectives. Monitoring would be conducted within the treatment units before, during, and after treatment implementation. Monitoring would consist of surveys to:

1. Ensure that the initial treatment objectives are met;
2. Evaluate vegetation/fuel load recovery; and
3. Identify invasive species for subsequent treatment under a separate action.

2.1.1.8 Maintenance: Treatments would be maintained as necessary so that original objectives may be met or continue to be met. Maintenance of the fore mentioned treatments may include any of the described actions in single or in any combination.

2.1.2 Alternative B: No Action

Under the No Action Alternative, the BLM would not implement the vegetative treatments described in the Proposed Action. The purpose of the No Action Alternative is to provide the baseline conditions under the current management of the Project area. On the basis of the No Action Alternative, the BLM is able to evaluate the degree of change from the current situation to what would occur under implementation of any other alternative. The Proposed Action would represent a change in BLM's current management of the Project area.

The current trends in vegetation would continue. Pinyon pine and juniper trees would continue to increase in density and expand into sagebrush communities and the health of shrub and understory plants would continue to decline. Conifers would continue to invade riparian areas and cause them to decline in health. Hazardous fuel conditions would continue to accumulate beyond levels representative of the natural (historic) fire regime and threaten to damage the sagebrush, woodland, and riparian habitats through the high risk of intense wildfires difficult to control. Overall, land health in the Pine Nut Mountains would continue to decline.

2.1.3 Alternatives Considered but Dismissed from Further Analysis

The BLM received two new alternatives to consider during public review of the draft EA. These new alternatives are summarized below.

Reduced Grazing/Habitat Restoration Alternative. This alternative would have: permanently closed treatment units to grazing, and removed range improvements such as water developments and fencing. This alternative would have reduced authorized levels of grazing in treatment units.

Stated reasons for this alternative include:

1. improve the health and resiliency of vegetation in the Pine Nut Mountains;
2. reduce existing direct impacts from livestock on sage-grouse and sage-grouse habitat;
3. allow the removal of fences to decrease juniper encroachment, to decrease sage-grouse/fence collision risks and mortality, and to decrease predation;
4. help reduce wildfire risks by reducing spread and establishment of invasive weeds;
5. allow recovery of meadows, and riparian areas on those allotments that failed to meet rangeland health standards;
6. allow recruitment of sagebrush in livestock impacted areas;
7. ensure recovery of aspen groves; and
8. protect pinyon-juniper communities.

As described in Section 3.15, the planning area is overlapped by 17 livestock grazing allotments (Figure 7). Closing grazing allotments would be inconsistent with the Carson City Field Office Consolidated Resource Management Plan (CRMP) (BLM 2001) which has identified the allotments as available for livestock grazing. Under 43 CFR 1610.5-3, all actions approved or authorized by the BLM must conform to the existing land use plan. Actions out of conformance with the CRMP would require a land use plan amendment, which is outside the scope of this final EA.

Reducing the level of authorized grazing and removing range improvements is outside the scope of this final EA. Animal month units (AUMs) for grazing and range improvements are authorized by the BLM when a term livestock grazing permit is under review for renewal. The BLM completes NEPA analysis that includes a review of activities such as: authorized AUMs, season of use, pasture rotation, and range improvements. As a part of this process, the BLM completes an allotment evaluation, and standards and guidelines determination based on the land health standards for the Sierra-Front-Northwestern Great Basin Area. The allocation of forage resources between wildlife, wild horses, and livestock is based on the Pine Nut Final Multiple Use Decision (MUD) (BLM 1995).

The BLM was unable to evaluate this alternative further, in part due to its lack of specificity and relevance to the purpose of this Project. Several of this alternatives' objectives would be met by this Project, however the means to the objectives are different. Under this alternative, the means to the objectives are through eliminating or reducing livestock grazing. The BLM did not fully evaluate this alternative and provides the following responses:

- Item #1: the BLM proposes in Section 1.2 to “improve the health and resiliency of vegetation in the Pine Nut Mountains” through implementation of vegetative treatments described in Section 2.1.1.3;
- Item #2: eliminating or reducing grazing is outside the scope of this final EA. During the renewal of a term livestock grazing permit and NEPA analysis, the BLM analyzes the impacts to sage-grouse and other BLM sensitive species, and as appropriate may consider adjustments to livestock grazing;
- Item #3: the removal of fencing is outside the scope of this final EA. During the renewal of a term livestock grazing permit and NEPA analysis, the potential impacts that may be caused by fencing are analyzed and the BLM may consider modification to such fencing. As stated in Sections 3.6, 3.11 and 4.6, the removal of pinyon-juniper may decrease predation of sage-grouse by removal of perching opportunities;
- Item #4: best management practices stated in Section 2.1.1.5 would decrease the potential for spread or establishment of invasive weeds. As stated in Section 2.1.1.7, monitoring would determine where and when treatments to remove invasive species may occur, authorization for such treatment would occur at a later time and under a separate decision-making process that includes public involvement;
- Item #5: no specific allotment was identified as failing to meet rangeland health standards and this issue is outside the scope of this final EA. The appropriate opportunity for this issue to be addressed would be during the renewal of a term livestock grazing permit, if failing to meet rangeland health standards has been identified in a standards and guidelines determination;
- Item #6: no specific allotment was identified for failing to allow for recruitment of sagebrush in livestock impacted areas, and this issue is outside the scope of this final EA. The appropriate opportunity for this issue to be addressed would be during the renewal of a term livestock grazing permit, if that issue has been identified and is attributable to livestock grazing;
- Item #7: as stated in Sections 4.4, 4.5 and 5.0, riparian communities including aspen are anticipated to benefit from the proposed treatments; and
- Item #8: as stated in Section 1.2, the protection and enhancement of historic pinyon-juniper woodland habitat is one of the objectives of this Project.

Science-based Conservation Alternative. This alternative would have focused ecological restoration in “areas of sage-grouse habitat that are outside [unspecified] grazing allotments.” Vegetative treatments could include selective hand-cutting of younger trees in the vicinity of sage-grouse leks or important sage-grouse use areas. Felled and downed trees would be left on the ground. Areas of cheatgrass infestation would be targeted for restoration. Vectors that spread cheatgrass such as livestock, machinery and vehicles would be minimized to help prevent further dispersal and new infestations.

As described in Section 3.15, the planning area is overlapped by grazing allotments. No specific location for implementation of this restoration was identified. This alternative was not evaluated due to lack of specificity and that several objectives are included in the Proposed Action including “hand cutting of younger trees” (see Table 1 for specific units) “leaving felled and downed trees on the ground” (see Pile Burning under Section 2.1.1.3) and addressing cheatgrass (see Sections 2.1.1.7 and 3.16). As described above, reducing livestock grazing is outside the scope of this final EA.

3.0 AFFECTED ENVIRONMENT

3.1 Setting

The planning area is the Pine Nut Mountains, located in Douglas, Lyon and Carson City Counties, Nevada. The communities of Carson City, Minden, Gardnerville, Wellington, Smith and Dayton are spread around the edge of the range. The range, which runs north-south for 38 miles, includes approximately 400,000 acres of mixed ownership (public land, private land, Indian trust land⁷) (Figure 11). The southern portion of the range includes the 13,395 acre Burbank Canyon Wilderness Study Area (WSA). The topography of the range varies from rolling hills, approximately 5,000 feet in elevation, to over 9,000 feet in elevation at the tops of the tallest peaks. Vegetation is typical of the western Great Basin and is dominated by a mix of grasses (*Poa* spp.), sagebrush, rabbitbrush, bitterbrush (*Purshia tridentata*), and pinyon and juniper trees. Temperatures can exceed 100 degrees Fahrenheit (°F) at lower elevations during July and August and can drop below 10 °F during December and January. Average annual precipitation is strongly influenced by elevation and varies from six to 16 inches.

3.1.1 Resources Considered for Analysis

The BLM is required to address specific elements of the environment that are subject to requirements in statute or regulation or by executive order (BLM 2008). Table 3 lists the elements that must be addressed in all environmental analysis and indicates whether the Proposed Action and Alternatives affect those elements. Other resources of the human environment that have been considered for analysis are listed in Table 4.

⁷ Trust land refers to land held in trust by the United States for an Indian tribe or an individual tribal member. This means that the United States holds legal title to that land, while the tribe or individual tribal member holds beneficial title, which means that the tribe or tribal member has the right to use the property and derive benefits from it.

Table 3. Supplemental Authorities*.

Resource	Present Yes/No	Affected Yes/No	Rationale
Air Quality	Y	Y	Carried forward for analysis.
Areas of Critical Environmental Concern	N		Resource not present.
Cultural Resources	Y	Y	Carried forward for analysis.
Environmental Justice	N		Resource not present
Farm Lands (prime or unique)	N		Resource not present.
Floodplains	N		Resource not present.
Invasive, Non-Native Plant Species	Y	Y	Carried forward for analysis.
Migratory Birds	Y	Y	Carried forward for analysis.
Native American Religious Concerns	Y	Y	Carried forward for analysis.
Threatened or Endangered Species (animals)	N		Resource not present.
Threatened or Endangered Species (plants)	N		Resource not present.
Wastes, Hazardous or Solid	N		Resource not present.
Water Quality (Surface/Ground)	Y	N	Best management practices would minimize any potential adverse effect to surface waters in the Project area.
Wetlands/Riparian Zones	Y	Y	Carried forward for analysis.
Wild and Scenic Rivers	N		Resource not present.
Wilderness/WSA	Y	N	Although several treatment units under the Proposed Action are adjacent to the Burbank Canyon WSA, treatment actions would not impair the characteristics of the WSA.

*See H-1790-1 (January 2008) Appendix 1 Supplemental Authorities to be Considered.

Supplemental Authorities determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.

Supplemental Authorities determined to be Present/May Be Affected may be carried forward in the document.

Table 4. Resources or Uses Other Than Supplemental Authorities.

Resource or Issue**	Present Yes/No	Affected Yes/No	Rationale
BLM Sensitive Species (animals)	Y	Y	Carried forward for analysis.
BLM Sensitive Species (plants)	Y	Y	Carried forward for analysis.
Fire Management	Y	Y	Carried forward for analysis.
Forest Resources	Y	Y	Carried forward for analysis.
General Wildlife	Y	Y	Carried forward for analysis.
Global Climate Change	Y	N	Although there is public and scientific debate about human-caused global climate change, no methodology currently exists to analyze to what extent the negligible contributions of greenhouse gases (GHG) would contribute to climate change from implementation of the Proposed Action. See Section 5.0 for a summary for effects on the Great Basin.
Greenhouse Gas Emissions	Y	N	Although under the Proposed Action there would be negligible contribution of GHG from pile burning and vehicle/equipment emissions, no methodology exists to assess resource impacts within the planning area from such contributions of GHG.
Land Use Authorization	Y	N	Although right-of-ways are present in the Project area, none of the alternatives would affect these authorizations and activities.
Lands with Wilderness Characteristics	N		Pursuant to Sections 101, 201 and 202 of the Federal Land Policy and Management Act, GIS spatial imagery was reviewed by the BLM. No LWCs were identified within the planning area.
Livestock Grazing	Y	Y	Carried forward for analysis.
Minerals	Y	N	Although mining claims are present in the Project area, none of the alternatives would affect any on-going mining activities.
Paleontological	Y	N	Although paleontological resources are present in the Ruhenstroth area, the Proposed Action does not include surface-disturbing activities that would expose or adversely affect those resources.
Recreation	Y	N	Although dispersed recreation is present in the Project area, none of the alternatives would affect recreational activities.
Socioeconomics	N		Resource not present.
Soils	Y	N	There are no surface-disturbing activities in the Proposed Action; vehicles and equipment may create minor disturbances to soils but overall soil conditions would not be affected, therefore this resource has not been analyzed.
Travel Management	Y	N	Although dispersed recreation is present in the Project area, none of the alternatives would affect access.
Vegetation	Y	Y	Carried forward for analysis.
Visual Resources	Y	Y	Carried forward for analysis.
Wild Horses and Burros	Y	Y	Carried forward for analysis.

***Resources or uses determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.*

Resources or uses determined to be Present/May Be Affected may be carried forward in the document.

3.2 Cultural Resources

Regulatory Setting

This final EA includes the site-specific analysis for each of the treatment units in the Project area. Certain treatment methods such as hand cutting do not involve ground disturbance and

therefore have a very low potential to adversely⁸ affect historic properties. Other methods, such as those that involve mechanized equipment, have the potential to adversely affect historic properties. Due to the phased approach of this Project, anticipated to be implemented over a 10 to 15 year period, there is the potential for historic properties to be adversely affected by the treatments. To resolve potential adverse effects, the BLM has executed a Programmatic Agreement (PA) in accordance with 36 CFR 800.14 (b) (Attachment A). The PA defines the methods through which the BLM would identify historic properties and resolve adverse effects for each phase of the Project. Resolution of adverse effects is typically through site avoidance.

The BLM provided a 30-day public comment period on the draft PA on February 4, 2014. An article on the comment period appeared in the *Reno Gazette-Journal* on February 5, 2014 and the *Nevada Appeal* on February 6, 2014. The comment period closed on March 5, 2014. The BLM received five comments to consider. None of the comments resulted in a substantive revision to an alternative or the analysis of an alternative.

BLM defined the Project Area of Potential Effect (APE) as approximately 24,564 acres of public land. The BLM has reviewed the Project APE for historic properties. Based on a review of the files and geodatabase at the Carson City District Office, the Nevada Cultural Resource Information System (NVCRIS), General Land Office records, and current literature, known historic properties represent important past human use of the landscape in and immediately adjacent to the Project APE. Site types include prehistoric lithic scatters, stone alignments, and camp sites representing at least 12,000 years of human history. Also present are sites dating to the historic period including debris scatters; charcoal-making sites, stone structures; mines and mining exploration areas; and roads associated with mining, ranching, timber cutting, charcoal production and settlement of the area. Ethno-historic (or ethnographic) sites are also present, representing traditional activities such as hunting, tool-making, and pine nut harvesting. Further details on local site types and the potential for effects to historic properties from the implementation of this Project are available in a technical report prepared (CRR 3-2666).

Based upon the results the BLM literature review, about six percent of the Project APE has been subject to Class III cultural resource inventory, with 50 inventories conducted between 1975 and 2011. Approximately 183 cultural resources (prehistoric, historic and ethno-historic) were documented and evaluated (32 eligible, 19 unevaluated, and 132 not eligible).

3.3 Native American Religious Concerns

Regulatory Setting

Native American Tribes that have affiliation with the Project area include the Yerington Paiute Tribe and Washoe Tribe of Nevada and California. Under 36 CFR Part 800, consultation letters with a general summary of the proposed Project, and location maps were sent to the Washoe Tribe of Nevada and California and the Yerington Paiute Tribe on May 15, 2013. A presentation was made to the Washoe Tribe of Nevada and California Council meeting on June 14, 2013 and to the Yerington Paiute Tribal Council meeting on July 8, 2013.

⁸ In Sections 3.2, 3.3, 4.2 and 4.3 the term “adverse” is used consistent with 36 CFR 800.5(a)(1) defined as the “alternation to the characteristics of a historic property that qualify it for inclusion in the National Register of Historic Places in a manner that would diminish its integrity.”

Consultation over the last 10 years regarding the Pine Nut Mountains documents tribal comments and concerns including native plants and animals, traditional pine nut harvesting areas, traditional plant gathering areas, Native American cultural resources sites; the development of agreements/contracts for removal of wood products for use or sale by the Tribes, Indian Allotment lands, and continued consultation with BLM. At each new phase for the Project that would involve ground disturbance or mechanical treatments, a Class III cultural resources inventory would be conducted. Each phase of treatment may have an effect on tribal concerns. The BLM would continue to consult with Tribes accordance with NHPA, implementing regulations at 36 CFR 800, and the Project PA.

Traditional Values

In the planning area there are a number of resources of interest and concern to area Tribes. Areas of interest include: pre-contact and historic sites, human burials, and native plants traditionally used for food, medicine and fiber. Pinyon pines, especially older trees, are valued for nut production. Other valued plants that may occur in the Project area include: rose (*Rosa woodsii*), snowbrush (*Ceanothus velutinus*), mountain mahogany, wild onion (*Allium* sp.), wild garlic, willow (*Salix exigua*), mariposa lily (*Calochortus bruneaunis*), chokecherries (*Prunus virginiana*), and elderberries (*Sambucus nigra*).

3.4 Wetlands/Riparian Zones

Wetlands and riparian areas cover a relatively small amount of land in Nevada and within the planning area. High quality riparian habitat can generally support more species than most other habitat types due to the presence of water and a productive nutrient-rich environment. The Project area includes three types of riparian ecosystems including: perennial springs/seeps; intermittent and ephemeral streams, and aspen stands (which can indicate a shallow water table). Twelve of the treatment units have identified riparian areas. Identification of riparian areas was determined by use of aerial imagery and field inspections.

Principal tree species in lowland riparian areas include Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) and black cottonwood (*P. trichocarpa*). Principal shrub species include buffalo berry (*Shepherdia argentea*), chokecherry (*Prunus virginiana*), and several species of willow, such as grey willow (*Salix exigua*), Lemmon's willow (*S. lemmonii*), and yellow willow (*S. lutea*). Grass species (*Poaceae* spp.) include creeping wildrye (*Leymus triticoides*) and a variety of wetland species, including sedges (*Carex* spp.), rushes (*Juncus* spp.), and cattails (*Typha* spp.). Multiple drainages within the Project area have riparian corridors with vegetation communities that support a diversity of wildlife.

3.5 General Wildlife

Habitats

The vegetation types in the Project area can structurally and functionally be combined into three major wildlife habitats: sagebrush, pinyon-juniper (includes pure and mixed stands of pinyon and juniper), and riparian areas (includes meadows, montane riparian, and small wetlands) (Figure 3).

Sagebrush communities are important to a variety of wildlife, including sagebrush obligates such as sage-grouse, Brewer's sparrow (*Amphispiza bilineata*), sage thrasher (*Oreoscoptes montanus*),

and sage sparrow (*Amphispiza belli*). Additionally, these communities are important to other species that may be present during certain times of the year, such as pronghorn antelope (*Antilocapra americana*), mule deer, black-throated sparrow (*A. bilineata*) ferruginous hawk (*Buteo regalis*), vesper sparrow (*Pooecetes gramineus*), loggerhead shrike (*Lanius ludovicianus*) and gray flycatcher (*Empidonax wrightii*).

Pinyon-juniper serves an important food source for the pinyon jay (*Gymnorhinus cyanocephalus*), Steller's jay (*Cyanocitta stelleri*), western scrub jay (*Aphelocoma californica*), and Clark's nutcracker (*Nucifraga columbiana*) (Ryser 1985).

Game Species

Primary game species within the planning area include mule deer and pronghorn. Other upland game species occurring in the planning area include California quail (*Callipepla californica*), chukar (*Alectoris chukar*), and band-tailed pigeon (*Patagioenas fasciata*).

The Nevada Department of Wildlife (NDOW) has identified most of the planning area as year round habitat for mule deer. Crucial winter range occurs in the southern, lower elevation areas of the Pine Nut Mountains. The northeast side of the planning area is pronghorn antelope habitat. Pronghorn use lower elevations in fall and spring but move to higher elevations in deep winter and mid-summer to escape temperature extremes. All of the Pine Nut Mountains is considered habitat for black bear (*Ursus americanus*). See Table 5 for species distribution.

Table 5. Large Game Species within the Project area.

Species	Habitat Status/Type	Acres	% of Project Area
Black Bear	Occupied	24,564	100
Mule Deer	Occupied/Agriculture	80	<1
	Occupied/Year-Round	21,714	88
	Occupied/Crucial Winter	2,769	10
Pronghorn	Occupied/Year-Round	8,173	31

Source: NDOW GIS data (2010).

3.6 BLM Sensitive Species (Animals)

Species designated as BLM sensitive must be native species found on BLM-administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either:

1. there is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range; or
2. the species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.

A list of Nevada BLM sensitive species was released in 2011 (IM No. NV-2011-059 with the final list released in October 2011). Appendix A provides a list of BLM sensitive animals that may be present in the planning area. BLM sensitive species use a variety of habitats in the

planning area; habitats in the Project area consist of sagebrush, pinyon-juniper woodland, and riparian areas. Habitat concerns in the Project area include pinyon-juniper encroachment, declining health of sagebrush, loss of perennial understory, and high risk of habitat loss to wildfire.

Bi-State DPS of Greater Sage-Grouse

Regulatory Setting. With the exception of a very small portion (107 acres), the Project area lies within the Pine Nut PMU for the Bi-State sage-grouse (Figure 8). There are no known active leks within any treatment units. The estimated population for the PMU in 2009 was between 89-107 birds. The Pine Nut PMU was excluded from population trend analysis for the Bi-State area because the population lacked sufficient data for analysis (FWS 2010).

Approximately 17,673 acres (72 percent) of the Project area is within preliminary priority habitat (PPH) (Figure 9). These maps, used by the BLM since December 2012, were developed through a collaborative effort by the Bi-State Technical Advisory Committee that consisted of representatives from California and Nevada BLM, U.S. Forest Service, U.S. Geological Service, FWS, and the respective State wildlife agencies. PPH areas were derived from the combination of modeling resource selection functions and calculating UD from telemetry data collected over a seven-year period. Direction for BLM proposed actions within PPH are outlined in Nevada Instruction Memorandum (IM) No. NV-2013-009. Under the IM, the BLM is to provide:

1. Protection of intact habitats;
2. Minimization of habitat loss and fragmentation; and
3. Management of habitats to maintain, enhance, or restore conditions that meet Bi-State DPS life history needs.

Objectives in the IM that would be met under the Proposed Action include:

1. Improvement of habitat for the Bi-State sage-grouse;
2. Minimize avian predator perches and predation opportunities; and
3. Habitat enhancement is a high priority for the fire management program.

On October 28, 2013, the U.S. Fish and Wildlife Service (FWS) issued proposed rules in the *Federal Register* (46889, Vol. 78 No. 208) for the proposed listing of the Bi-State sage-grouse as threatened, and designation of proposed critical habitat (PCH) (46862 Vol. 78 No. 208). Approximately 20,105 acres (82 percent) of the Project area is within PCH (Figure 10). A final determination of acres of PCH within the Project area would not occur until the FWS issues final listing decisions on the Bi-State sage-grouse as a threatened species, and designation of critical habitat. Per Nevada IM No. NV 2014-008 “Conferencing with U.S. Fish and Wildlife Service on Activities Potentially Affecting Species and Their Habitats Proposed for Federal Listing” the BLM has determined that effects to Bi-State sage-grouse and proposed critical habitat from implementation of this Project would result in “no effect” or “not likely to adversely affect”⁹ determinations depending on the treatment unit, timing and method, therefore no conferencing with FWS is required (BLM 2013a, BLM 2014).

⁹ The appropriate conclusion when effects on a listed species are expected to be discountable, insignificant, or completely beneficial (FWS 1998).

Species Information. Sage-grouse is highly adapted to sagebrush; 98 percent of the year-round diet of adults is made up of sagebrush leaves, which gives the bird the ability to winter on sagebrush range (WAP Team 2006). Sagebrush species eaten by grouse include, mountain big sagebrush (*Artemisia tridentata vaseyana*), Wyoming big sagebrush (*A. t. wyomingensis*), low sagebrush (*A. arbuscula*), black sagebrush (*A. nova*), fringed sagebrush (*A. frigida*), and silver sagebrush (*A. cana*). Sage-grouse depend on mature shrubs for nesting structure, protection from predators, and thermal cover. They nest on the ground under low-growing sagebrush bushes enhanced with thick bunchgrass understory. Both a dense shrub overstory and an herbaceous understory of grasses are crucial for shade and concealment. Woodland encroachment has been identified as a large-scale threat to sage-grouse in Nevada and encroachment into occupied sage-grouse habitat reduces, and likely eventually eliminates, sage-grouse occupancy. There is documented avoidance, or reduced use, by sage-grouse of areas where pinyon-juniper has encroached upon sagebrush communities (FWS 2010).

According to the 2012 Bi-State Action Plan, the threat level to sage-grouse is high from wildfire and pinyon-juniper encroachment, both threats are addressed by the Proposed Action (Bi-State Technical Advisory Committee 2012). Important nesting habitat near the active lek in Mill Canyon was burned in 2007 during the Adrian Fire and several recent fires have burned elsewhere in the PMU since 2009. The potential for additional lightning-ignited wildfires in the PMU is high. Pinyon-juniper encroachment into existing sagebrush habitats has reduced available nesting habitat, decreased habitat connectivity, and increased fuel loading and the overall risk of wildfire in the PMU. The synergistic effect of wildfire and pinyon-juniper encroachment substantially increases the risk of cheatgrass (*Bromus tectorum*) establishment and expansion in the PMU.

Based on recent sage-grouse telemetry data, grouse habitat use occurs primarily in the Mill Canyon, Crest, Slaters, Mount Siegel, and Bald Mountain units. The Mill Canyon unit occurs near the known lek and pinyon-juniper encroachment in this unit occurs in breeding, nesting, and early-brood rearing habitat. Increasing tree density is risking a decline in the herbaceous understory. As woodland increases, shrub cover declines and the season of available succulent forbs is shortened due to soil moisture depletion (FWS 2010). Diverse plant communities with abundant insects are particularly important during the early brood-rearing period; chick survival is directly linked to availability of food and cover of grasses (GBBO 2010). Tree encroachment in the Crest and Slaters units occurs in habitat serving as seasonal movement corridors and trees expanding uphill toward the crest of the Pine Nut Mountains are reducing the quality and dimensions of these travel corridors. Tree encroachment in the Bald Mountain and Mount Siegel units occurs in brood-rearing/summer habitat. Interspersion of wet meadows in a sagebrush matrix is important for brood rearing. High quality brood-rearing habitat with sufficient moisture to allow persistence of green forbs until late summer may be a limiting factor in Nevada (GGBO 2010) and wet areas in these treatment units are at risk due to uptake of water by increasing expansion and density of trees.

Pygmy Rabbit: Pygmy rabbits (*Brachylagus idahoensis*) are highly dependent on sagebrush to provide food and shelter throughout the year and are typically associated with tall, dense stands of big sagebrush growing in deep, loose soils in which they can construct burrows. Big

sagebrush is the primary food source, but grasses and forbs are also eaten (Wildlife Action Plan 2012). The BLM and the Nevada Department of Wildlife have not documented pygmy rabbit habitat or their occurrence within the Pine Nut Mountains. According to the Nevada Natural Heritage Program, the Pine Nut Mountains is not within the range of this species (NNHP 2001) and there are no records for or known occurrences of pygmy rabbit within Douglas, Lyon and Carson City Counties, Nevada (FWS 2010a).

3.7 Migratory Birds

In 2001, President Clinton signed Executive Order (EO) 13186 placing emphasis on the conservation and management of migratory birds. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 and EO 13186 addresses the responsibilities of federal agencies to protect migratory birds by taking actions to implement the MBTA. BLM policy for migratory bird management is provided in Information Bulletin (IB) No. 2010-110 and is based on the 2010 Memorandum of Understanding (MOU) between the BLM and the FWS for the conservation of migratory birds. According to the MOU, BLM Priority Migratory Birds are those migratory birds that are those listed in the periodic FWS report *Birds of Conservation Concern* (FWS 2008), and those identified by the FWS Division of Migratory Bird Management as game birds below desired condition. Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are also protected by the Bald and Golden Eagle Protection Act (1940 as amended 1959, 1962, 1972, 1978).

Appendix A provides a list of migratory birds that may be present in the planning area. BLM migratory birds use a variety of habitats in the planning area; habitats consist of sagebrush, pinyon-juniper woodland, and riparian areas. Habitat concerns in the Project area include pinyon-juniper encroachment, declining health of sagebrush, loss of perennial understory, and high risk of habitat loss to wildfire.

Sage sparrow, sage thrasher, and Brewer's sparrow distribution is closely tied with that of sagebrush. These species require tall sagebrush shrubs for nesting or song perches and an open understory of native bunchgrasses and forbs. They depend heavily on the shrub component for nesting substrate. Loggerhead shrikes also use mature shrubs for nesting structure, protection from predators, and thermal cover. Species such as mourning doves (*Zenaidura macroura*) and pinyon jays use sagebrush habitat, but are also dependent on woodland. Increasingly dense stand conditions are occurring within the planning area and predominantly closed-canopy stands exhibit decreased abundance of bird species. From a bird conservation perspective, ideal pinyon-juniper woodland has a mostly open canopy with a significant shrub understory (GBBO 2010). These woodland birds need high-quality habitat, not vast amounts of dense woodland; they prefer a mixed-age mosaic of woodland transitioning into or interspersed with sagebrush (GBBO 2010). Multiple species of raptors likely occur in the planning area. Current diversity exists because of the proximity of different habitat types that provide nesting, roosting, and foraging sites. For example, northern goshawks (*Accipiter gentilis*) nest in mature aspen stands surrounded by coniferous forest and/or shrubland for foraging. Ferruginous hawks (*Buteo regalis*) nest in juniper trees, but prefer open sagebrush for foraging. Ferruginous hawks and golden eagles spend most of their time hunting over sagebrush for ground squirrels, jackrabbits, and other prey. Threats to these raptors include reductions in prey populations from degradation of rangelands. These raptors are limited by prey densities and need sagebrush habitat with a

productive herbaceous understory that provides an abundant prey base (GBBO 2010). Thus, increasingly dense woodlands decrease foraging opportunities for these species as well as other.

3.8 Vegetation

The Project area supports a diversity of vegetation communities that may be generalized into two categories: pinyon-juniper woodlands, and sagebrush. These different vegetation communities are a result of elevation, moisture, soil substrate, aspect, and past land use practices.

Pinyon-Juniper Woodlands

This is largest vegetation community found in the Project area. Pinyon-juniper woodlands are found on 164,377 acres of BLM-managed lands within the planning area. Over the past 11,000 years, single-leaf pinyon pine has become a dominant species in the middle elevations of the region (Lanner 1983). The distribution of single-leaf pinyon is primarily a function of climate and begins abruptly at the Truckee River and Interstate 80 and increases in dominance southward. Throughout its distribution, single-leaf pinyon mixes with Utah juniper, which is the most common juniper species in the Project area. Western juniper (*Juniperus occidentalis*) may also occur in the Project area, although to a lesser extent.

Pinyon-juniper forests thrive in areas where annual precipitation ranges from 12 to 18 inches but will survive to lower extremes of eight inches in the Project area. Elevation limits are determined at the lower extent by lack of moisture and at the upper limits by biotic competition, low temperatures, and excessive soil moisture. Within the Project area, pinyon-juniper woodlands occupy elevations from about 5,000 to 7,000 feet.

Similar to sagebrush expansion, European settlement has significantly altered the pinyon-juniper woodland. This community has increased in both area (5 to 10 times) and stand density (2 to 20 times) in the Great Basin (Tausch 1999; Miller et al. 2001), due to many factors including mining, grazing, fire suppression, and climatic change. In particular, juniper has expanded into former sagebrush habitats.

Sagebrush

The sagebrush community is found throughout the Project area at all elevations and aspects. This community is divided into two subgroups, big sagebrush and low sagebrush. The big sagebrush community includes three subspecies: the more common Wyoming sagebrush, which grows in dry, low elevation areas; mountain sagebrush, which grow in more moist areas and at higher elevations; and basin big sagebrush, which grows at the lowest elevation of the three subspecies. Plants associated with big sagebrush include other shrub species, grasses, and forbs. The low sagebrush community may include both low sagebrush and black sagebrush. Low sagebrush grows in colder, higher elevation sites with thin rocky soils, but may occupy areas similar to Wyoming big sagebrush and may intermix with this subspecies at the transition area between two adjacent ecological communities. Black sagebrush grows in similar conditions but prefers more moisture (Mozingo 1987), and this species is limited in range within the Project area. Other constituents within the low sagebrush community include buckwheat species (*Eriogonum* spp.), lomatium (*Lomatium* spp.), lewisia (*Lewisia* spp.), balsamroot (*Balsamorhiza* spp.), and grasses (*Poa* spp.).

3.9 BLM Sensitive Species (Plants)

Table 6 Lists the Sensitive Plant Species That May Occur or Their Habitat May be Present in the Project Area.

Common Name	Scientific Name
Lavin's eggvetch	<i>Astragalus oophorus</i> var. <i>lavinii</i>
Margaret's rushy milkvetch	<i>A. convallarius</i> var. <i>margaretiae</i>
Pine Nut Mountains mousetails	<i>Ivesia ptyocharis</i>
Webber's ivesia	<i>I. webberi</i>
William's combleaf ¹⁰	<i>Polyctenium williamsiae</i>

Lavin's eggvetch: These plants prefers open, dry and relatively barren gravelly clay slopes, knolls, badlands or outcrops, derived from volcanic ash or carbonate, usually on northeast to southeast aspects, in openings in pinyon-juniper or sagebrush communities. Known populations have not been mapped in the Project area.

Margaret's rushy milkvetch: These plants prefers rocky slopes and flats among sagebrush in pinyon-juniper or sagebrush communities. Known populations have not been mapped in the Project area.

Pine Nut Mountains mousetails: These plants occur in seasonally or periodically wet, otherwise moist to dry decomposed granite soils or sod of meadow margins with shallow underlying water table and/or bedrock, associated with springs, moist drainages or ephemeral ponds. They typically occur on flats or gentle northwest to northeast exposures. These plants are aquatic or wetland dependent.

Webber's ivesia:

Regulatory Setting.

On August 1, 2013, the FWS issued a 12-month petition finding, proposed rule in the *Federal Register* for the proposed listing of the Webber's Ivesia as threatened, and designation of critical habitat (46862 Vol. 78 No. 149). There is no proposed critical habitat in the Project area. The only known population of Webber's Ivesia is located at the western edge of the planning area near Highway 395 and Carters Station, Douglas County (Township 11N, Range 21E, Section 15). No Project activities would occur within or adjacent to this area (the nearest treatment unit is approximately three miles northeast). According to the Nevada Natural Heritage Program, this is the only known population in the planning area (NNHP 2001, FWS 2013a). Known populations have not been mapped in the Project area.

The BLM has determined that effects to Webber's Ivesia from implementation of this Project would result in "no effect" or "not likely to adversely affect" due to the commitments included in Section 2.1.1.5 and depending on the treatment unit, timing and method, therefore no conferencing with FWS is required (BLM 2013a).

¹⁰ Suitable habitat may occur around playa lakes in the Project area, however, no Project activities would occur in these environments. The Project would have no effect to William's combleaf and the species is not considered any further.

Species Information. These plants prefers dry, barren, and rocky soil. The plant flowers from March to May and is associated with sagebrush at elevations between 4,475 and 6,237 feet (NNHP 2001, FWS 2013a).

3.10 Fire Management

Fire plays a critical role in shaping vegetative characteristics. Fire suppression practices of the twentieth century have pushed some ecosystems outside their historic range of variability due to increased fuel accumulations, higher densities of trees and shrubs, and increased ladder fuels. As a result, these areas are prone to higher-intensity wildfires than historically experienced.

The Project area is included in the Carson River and Como fire management units of the Carson City Field Office Fire Management Plan (2002). A fire management unit is a specific land management area that is defined by fire management objectives, management constraints, topographic features, access, values to be protected, political boundaries, fuel types, and major fire regime groups. In general, wildfire is not wanted or may be needed but is not wanted due to constraints imposed by social, political or resource concerns. Aggressive initial attack and full suppression is the general rule. Opportunities for prescribed fire exist but are limited by these same constraints and fuel treatments are primarily limited to mechanical methods. Fire education and prevention programs are a priority.

The occurrence of wildland fire varies from year-to-year depending on weather, climatic, and other conditions. Fire occurrence and size can depend on a range of factors, including elevation, vegetative community, fuel moisture, precipitation or lack of precipitation, the ability of fire to carry in specific types of vegetation, and other climatic dynamics such as dry summer weather following a wet spring or extended periods of drought.

The BLM is responsible for fire management, including fuels management, within the planning area on BLM-managed lands. The BLM is also responsible for fire suppression within the area on Indian trust lands through an annual agreement with the Bureau of Indian Affairs.

Current Condition

Fire History

The weather and fuel structure in the Pine Nut Mountains provide an opportunity for ignitions from frequent summer storms and lightning ignited fires have traditionally been an integral factor in the formation and arrangement of vegetation types across the planning area. Between 1980 and 2013, there has been an average of 18 wildfire starts per year within the planning area. Between 1980 and 2013, there have been 37 documented large wildfires, covering 76,543 acres within the planning area. Recently large fires burned 5,484 acres in 2011, 13,680 acres in 2012 and 24,140 in 2013. Lightning accounts for 68 percent of all starts. Cigarettes, vehicles, firearms, children, and unattended campfires account for most human-caused starts. Human-caused starts are most common in the foothills, along the urban interface.

More recently, the combination of wildfire suppression and changing land use patterns has altered the natural cycle and role of fire. Suppression actions have resulted in large, unnatural fuel loads across the landscape, while invasive species such as cheatgrass are fire-adapted and

tend to dominate the understory after a fire occurs on lower elevations. Wildland fires will burn with greater intensities and spread more rapidly, consuming more acres than in the past under these altered landscape conditions.

The fire season normally extends from late April to early November. The most critical fire conditions are often present from mid-June until October or November when season-ending winter weather arrives.

Fuels Management History

The National Fire Plan provided funding to improve fire prevention and suppression, reduce hazardous fuels, restore fire-adapted ecosystems, and promote community assistance. Between 1996 and 2013, there have been six prescribed fires for 797 acres and 15 mechanical fuels treatments for 9,605 acres completed within the planning area. The prescribed fires were conducted on the east slope of Mount Como and north of Jack Wright Pass. The mechanical fuels treatments were conducted along the Carson City, Fish Springs and Smith Valley wildland urban interface areas and in the vicinity of Hackett Canyon, Sullivan Canyon, Mill Canyon and Spring Gulch.

Fire Regimes

Fire regimes are used as part of the fire regime condition class (FRCC) discussion to describe fire frequency (average number of years between fires) and fire severity (effect of the fire on the dominant overstory vegetation—low, mixed, or stand replacement). These regimes represent fire intervals prior to Euro-American settlement and are calculated and classified by analyzing natural vegetation, known fire cycles, and fire history data.

The Project area can be characterized by primarily Fire Regime Groups III and IV (Figure 4) (USDA 2013). Fire Regime Group III in the historical grass, brush and pinyon-juniper plant communities and Fire Regime IV in the historical grass and brush plant communities. Fire Regime Groups III and IV both have a natural historical fire frequency of 35-100 years with Fire Regime III having a mixed fire severity and Fire Regime Group IV a stand replacement fire severity.

Fire Regime Condition Class

FRCC is a classification system that describes the amount of departure an area or landscape has experienced from its historic regime to the present condition. It is used to classify existing ecosystems by looking at conditions of ecosystem components. Departures from the historic fire regimes are caused by fire exclusion, timber harvesting, grazing, introduction and establishment of exotic plant species, insects and disease, and other management activities. Wildland fire and fuels management works towards restoring ecosystem components to their historic range.

The condition class in the planning area varies across the landscape with all three condition classes present. The proposed treatment units are primarily characterized as Condition Classes 1 and 2 with scattered small pockets of 3 (LANDFIRE 2010).

Fire regimes in Condition Class 1, primarily the high elevation mountain big sagebrush communities are within a historical range, and the risk of losing key ecosystem components is

low. Vegetation attributes (species composition and structure) are intact and functioning within a historical range. Where appropriate, these areas can be maintained within the historical fire regime by treatments such as hand treatment.

Condition Class 2 situations exist where one or more fire return intervals have been missed and vegetation continues to grow uninterrupted, becoming increasingly denser. Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased). This results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range. Where appropriate, these areas may need moderate levels of restoration treatments, such as hand or mechanical treatments, to be restored to the historical fire regime.

Condition Class 3 situations exist where fire regimes have been significantly altered from their historical range. Fire frequencies have departed from historical frequencies by multiple return intervals. Because fire regimes have been extensively altered, risk of losing key ecosystem components from fire is high. Overly dense woodland sites where understory herbaceous life is degraded and rangeland sites entirely dominated by invasive annual grasses would be condition class 3. Where appropriate, these areas may need intensive levels of restoration treatments, such as multiple hand or mechanical treatments and/or reseeding, to be restored to the historical fire regime.

Wildland Urban Interface (WUI)

The planning area contains a large amount of WUI. The intermixed landscape of public and private lands means wildland fires have a heightened potential to spread onto private property, destroying homes and valued landscapes. The BLM coordinates with other federal, State, county, and local agencies and participates in proactive community projects to reduce wildfire risks and damages.

The BLM works with other fire departments and local and State government to identify communities and other WUI values at risk from wildfire and to set priorities for the mitigation of those threats. Within the planning area a number of at-risk communities are present.

Trends

The trend in FRCC is likely to continue as vegetation types move further outside their historic fire regime due to fire suppression and an increase in nonnative species. Fires in areas infested with cheatgrass have and will continue to become more frequent, with potential to burn once every few years. Fires in areas with overly dense pinyon-juniper will continue to burn with high intensity and severity. The WUI will continue to expand, bringing urban development pressures to these vegetative communities. In response, suppression and fire exclusion activities will increase in an effort to protect economic values. Extensive WUI and high recreation use creates higher potential for human-caused fires. Costs to protect associated infrastructure from wildland fires is likely to increase.

3.11 Forest Resources

Pinyon-juniper woodlands provide a variety of non-economic and economic services and values. These woodlands are visual qualities of the Pine Nut Mountains for scenery and aesthetics, whether up close on one of the many dirt roads that traverses the mountains, to further away along the Highway 395, north-south corridor. Trees contribute to wildlife habitat in the form of providing shade and nesting/perching opportunities. On a watershed scale, trees along with soil, collect and regulate snow melt and run-off. Woodland products, whether for commercial or non-commercial purposes such as firewood, are a beneficial aspect of the woodlands. The geographic distribution of certain tree species can change overtime as a result of climate, wildfire and other natural forces. Urbanization adjacent to BLM-managed lands has resulted in increased concerns about wildfire in the urban interface.

The proximity of the planning area to the major population areas of Dayton, Carson City, Minden, and Gardnerville have resulted in a high demand for firewood, Christmas trees, pine nuts, and the occasional bonsai collector. The area is also valued for its scenic qualities by the public who frequent the area for various recreational activities. Local tribes value the area for spiritual and the rich cultural history, including fall gathering of pine nuts. Table 7 describes the forest and woodland types found within the planning area.

Table 7. Forest and Woodland Types within the Planning Area.

Forest/Woodland Type	Density	BLM Acres
Pinyon-juniper	Low- less than 20 percent canopy closure	93,695
	Medium – 20 to 70 percent canopy closure	60,819
	High – greater than 70 percent canopy closure	9,863
Mountain Mahogany	No data available	2,024
Riparian Deciduous	No data available	530
Total		166,931

Source: BLM GIS (2013).

Low density pinyon-juniper stands are indicative of expansion of this woodland type into adjacent sagebrush habitats. The scattered young trees have no economic value (with the exception of an occasional Christmas tree) since they are typically too small and inaccessible for firewood and have yet to produce any pine nuts. Medium density stands still contain an understory grass, forb, and shrub component. High density stands have little to no understory and are typically dominated by large trees that form a continuous canopy. Medium and high density stands are most susceptible to stand replacing fire, insects, and disease due to high fuel loads and low individual tree vigor caused by competition with neighboring trees for water, light, and nutrients. Harvest of firewood comes almost exclusively from these types of stands because of the high levels of mortality.

3.12 Visual Resources

Visual resources are the visible physical features on a landscape, such as land, water, vegetation, animals, and structures. Through its visual resource management (VRM) classification, the BLM ensures that the scenic values of public lands are considered before authorizing uses that may result in adverse visual impacts. The visual resources and aesthetics information below provide a baseline for analyzing potential impacts as a result of this Project. Management objectives for the VRM classifications are described below:

- Class I Objective: “To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.”
- Class II Objective: “To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.”
- Class III Objective: “To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.”
- Class IV Objective: “To provide for management activities, which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.”

The visual contrast rating stage involves determining whether or not potential visual impacts from proposed surface-disturbing activities or developments would conform to management objectives established for the area or whether Project design adjustments would be required. Using the analysis from the visual contrast rating worksheet as a guide, developers can reduce visual impacts caused by a project (BLM 2003). VRM classes and their associated resource management objectives apply only to public land. Table 8 shows the VRM classes for BLM land within the Project area are categorized as Class II, III, or IV (BLM 2001) as follows:

Table 8. VRM Classification

Class	Acres	% of Project Area
I	0	0
II	4,088	16
III	10,983	47
IV	9,493	37

Source: BLM GIS (2013).

According to BLM Manual 6330, Managing for Wilderness Study Areas (2012), “All WSAs should be managed according to VRM Class I management objectives until such time as Congress decides to designate the area as wilderness or release it for other uses.” The Burbank Canyon WSA is adjacent to a portion of the southern Project area. However, there no would be implementation activities within or adjacent to the WSA that would impair the areas wilderness characteristics. The Burbank Canyon WSA is not discussed further.

3.13 Air Quality

Air quality regulations for the Project area fall under the jurisdiction of the Environmental Protection Agency (EPA) and the Nevada Department of Environmental Protection’s Bureau of Air Quality (NDEP BAQ).

Ambient Air Quality Standards

Air quality is defined by ambient air concentrations of specific pollutants determined to be of concern with respect to the health and welfare of the general public. Under the Clean Air Act Amendments of 1990, the EPA established National Ambient Air Quality Standards (NAAQS)

and designated six common pollutants, known as criteria pollutants, in order to improve air quality throughout the country. These criteria pollutants are lead, ozone, sulfur dioxide, oxides of nitrogen, carbon monoxide, and particulate matter.

The EPA established standards for each pollutant that must not be exceeded. Areas that exceed a federal air quality standard are designated as nonattainment areas. Nevada has adopted the EPA air quality standards and has the right to establish more stringent state or county standards but may not lessen the federal standards. With minor exceptions, ambient air quality standards must not be exceeded in areas where the general public has access.

Current Condition

Carson City, Lyon County, and Douglas County are in attainment with the NAAQS. Locations vulnerable to decreasing air quality from development include the population centers of Carson City, Gardnerville-Minden, Dayton, Yerington, and Wellington.

Particulate matter concentrations are expected to be higher near towns because of local combustion sources and unpaved roads. Suspended particles are probably due to fugitive dust that is primarily windblown. Although there is no gaseous pollutant monitoring in the planning area, levels are estimated to be low and within standards. Occasional peak concentrations of carbon monoxide and oxides of nitrogen may be found in the immediate vicinity of combustion equipment.

The Nevada Bureau of Air Quality Planning operates an ambient air quality network of gaseous and particulate pollutant monitors throughout rural Nevada (those areas outside of Washoe and Clark Counties). Carson City, Lyon, and Douglas Counties are in attainment for lead, ozone, sulfur dioxide, oxides of nitrogen, carbon monoxide, and particulate matter, meaning that these counties adhere to criteria pollutant concentration limits established by the EPA and adopted by the State of Nevada. Carson City has one monitoring site for carbon monoxide and particulate matter; a second monitoring site in Gardnerville, also monitors particulate matter.

3.14 Wild Horses and Burros

The Pine Nut Mountain Herd Management Area (HMA) is located within the planning area (Figure 6). The HMA consists of approximately 90,900 acres of public lands. The boundary of the HMA was determined through a land use plan (BLM 2001). The Appropriate Management Level (AML) for wild horses (*Equus ferus*) was set in 1995 at 119-179 animals. The most recent census conducted in May of 2012 estimated the population at 293 animals. There are no burros (*E. africanus asinus*) in the Pine Nut Mountain HMA and this species is not discussed further.

3.15 Livestock Grazing

The planning area overlaps with 17 livestock grazing allotments (Figure 7). Table 13 lists the allotment name, season of use, Animal Month Units (AUMs), and type of use (cattle or sheep). Areas that are available for livestock grazing are determined through a land use plan. Authorization of AUM's, range improvements, season of use etc. is made through a term livestock grazing permit process that includes analysis under the NEPA and public involvement.

3.16 Invasive, Non-Native Plant Species and Noxious Weeds

Invasive species are defined by Executive Order 13112 as “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Alien refers to a species that did not evolve in the environment in which it is found. This includes plants, animals, and microorganisms. Table 9 lists the noxious weeds that may be present in the Project area. A brief description of each is provided below.

Table 9. Noxious Weeds That May be Present in the Project Area.

Common Name	Scientific Name
Canada thistle	<i>Cirsium arvense</i>
Hoary cress	<i>Cardaria draba</i>
Perennial pepperweed	<i>Lepidium latifolium</i>
Poison hemlock	<i>Conium maculatum</i>
Medusahead	<i>Taeniatherum caput-medusae</i>
Musk thistle	<i>Carduus natans</i>
Scotch thistle	<i>Onopordum acanthium</i>
Spotted knapweed	<i>Centaurea biebersteinii</i>

Canada Thistle. This perennial weed can be found in moist areas, has deep extensive roots, and often occurs in patches or colonies.

Hoary Cress. This perennial weed grows best in disturbed, alkaline soils. Reproduces through roots and seed.

Perennial Pepperweed. This perennial weed has a creeping root system and can be found in moist areas and pastures. Reproduces by roots and seed.

Poison hemlock. This biennial weed reproduces by seed and is toxic when consumed, and grows best in moist areas.

Medusahead. This annual weed reproduces by seed, grows best on clay soils, and is unpalatable to grazing animals.

Musk thistle. This biennial weed has a deep, fleshy taproot and reproduces by seed, and often infests roadsides.

Scotch thistle. This biennial weed reproduces by seed and can form dense stands that are difficult to penetrate. This weed has a fleshy taproot and often infests roadsides.

Spotted knapweed. This biennial weed has a deep, stout taproot, and can be found on dry, well drained soils, and often infests roadsides and rangelands. This weed reproduces by seed and lateral roots (NDA 2013).

Cheatgrass, an invasive weed, is also known to occur in the Project area. Cheatgrass is an annual grass that displaces native perennial shrub, grasses and forbs because of its ability to germinate quicker and earlier than native species, thus outcompeting natives for water and nutrients.

Cheatgrass is also adapted to recurring fires that are perpetuated in part by the fine dead fuels the plant leaves behind.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This chapter describes and compares the environmental consequences predicted to result from implementing the Proposed Action or Alternatives described in Chapter 2.0. The purpose of this chapter is to present the impact analysis of the alternatives and to disclose the impacts of the actions on affected resources by the Proposed Action or Alternatives.

The potential consequences or impacts of each alternative are addressed in the same order of resource topics in Chapter 3.0. This parallel organization allows readers to compare existing resource conditions (Chapter 3.0) with potential impacts (Chapter 4.0).

4.1.1 Types of Effects

This chapter describes the potential direct, indirect, and residual effects to resources that may result from the Proposed Action or Alternatives, as well as identifies the potential monitoring needs associated with the specific resources. In this document, the word “adverse” is used in characterizing minor (non-significant) detrimental effects to a resource, and “negligible” is used in characterizing minor (non-significant) detrimental effects to a resource that are generally undetectable. “Beneficial” effects would have a positive effect on the resource. In this document, the terms “effect” and “impact” are used synonymously. Assessment of effects can be for short-term (generally considered during Project implementation) or the long-term. Effects fall into two categories, direct (caused by the action, same time and place) and indirect (caused by the action, but later in time or further in distance).

4.2 Cultural Resources

Alternative A: Proposed Action

Under the Proposed Action, a PA has been executed (Attachment A). The PA defines the methods through which BLM would avoid adverse effects during implementation of the Proposed Action. Some units would be treated by hand (lop and scatter) under the Proposed Action. Treatment that does not involve ground disturbance would not result in adverse effect to historic properties. Treatment units that would be treated by mechanical equipment would first be subject to a Class III cultural resources inventory. Based on that inventory, identified historic properties would be delineated as avoidance areas. A larger buffer area may be delineated to ensure that there are no adverse effects to historic properties caused by indirect effects during Project implementation. In the long-term, reducing the likelihood of large-scale wildland fire would benefit historic properties in the Project area.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to cultural resources from the Proposed Action because it would not be implemented. Without implementation of the Proposed Action, the likelihood of large-scale wildland fire in the Pine Nut Mountains would remain high, and large, severe fires would have an adverse effect to cultural resources.

4.3 Native American Religious Concerns

Alternative A: Proposed Action

Under the Proposed Action, a PA has been executed (Attachment A). The PA defines the methods through which BLM would avoid adverse effects during implementation of the Proposed Action. Project implementation has the potential to adversely affect known and unknown traditional resources or traditional religious uses. The BLM would continue to consult with the Washoe Tribe of Nevada and California and the Yerington Paiute Tribe during all phases of the Project. Areas identified by the Tribes as key sensitive areas may be delineated as avoidance areas or mechanized treatments may be changed to hand treatment (i.e. lop and scatter). Impacts to traditional religious uses during Project implementation would be avoided through consultation for each phase of the Project. In the long-term, reducing the likelihood of a large-scale wildland fire would benefit traditional resources in the Project area.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to access to traditional resources or religious uses from the Proposed Action because it would not be implemented. Without implementation of the Proposed Action, the likelihood of large-scale wildland fire in the Pine Nut Mountains would remain high, and large, severe fires have the potential to adversely affect traditional resources and traditional religious uses.

4.4 Wetlands/Riparian Zones

Alternative A: Proposed Action

Under the Proposed Action, treatments in riparian areas would occur primarily by hand (lop and scatter) due to the steep terrain and limited accessibility. During Project implementation, riparian plant species may be crushed, an adverse effect. Use of existing roads would minimize potential for riparian plants to be impacted by vehicles. Most of the treatments are anticipated to occur during late summer or fall, the driest time of the year. Treatments would occur outside of the critical growing period in the life cycle of riparian plants. Treatment activities within riparian areas would be focused on the removal of pinyon-juniper trees. Treatment impacts have the potential to increase soil erosion. Most treatments in riparian areas would be by lop and scatter, a low impact activity.

Encroachment of pinyon-juniper into riparian areas can shade out non-conifer species, reduce water flow, and reduce soil moisture, all adverse effects to riparian species. Although these treatments would adversely affect pinyon-juniper, riparian species such as willow, cottonwood or aspen would benefit in the long-term. Wildlife associated with the riparian species would also benefit. Removing pinyon-juniper from riparian areas may reduce the effects of large-scale wildland fire that can lead to increased erosion, loss of riparian vegetation, and increase in invasive plants, a beneficial effect.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to riparian areas from the Proposed Action because it would not be implemented. Current vegetative trends would continue; riparian areas where conifer expansion contributes to reduced water flow and a reduction in species such as aspen, cottonwood and willow would likely

continue, an adverse effect. A large-scale wildland fire would adversely affect riparian areas due to increased soil erosion and removal of riparian vegetation.

4.5 General Wildlife

Alternative A: Proposed Action

Wildlife in the Project area is at risk due to habitat loss from pinyon-juniper encroachment and increasing density, loss of understory vegetation and degradation of riparian areas, and severe wildfire from dense tree stands. Preventing the transitioning of sagebrush communities to pinyon-juniper and managing for multi-aged pinyon-juniper stands in a heterogeneous mosaic across the landscape are conservation objectives identified in Nevada's Wildlife Action Plan (WAPT 2012). The Proposed Action addresses and would help accomplish these objectives. The Proposed Action would generally result in improved habitat conditions and resiliency for a variety of wildlife species including sagebrush obligates and others which require more open country, species associated with riparian areas, species which use woodland with a healthy perennial understory, and species that use sagebrush adjacent to woodland (woodland-sagebrush edge).

Under the Proposed Action, pinyon-juniper would be removed or thinned in treatment units, which is expected to benefit wildlife by promoting an increase in grasses, forbs, and shrubs. This would increase the abundance, diversity, and vigor of vegetation for cover and forage as well as providing increased food sources for species that eat seeds and insects, as well as an increased prey base for predators. Spacing of retained trees and shrubs would be random and irregular to create a mosaic of patchy habitat; proposed treatments would avoid creating a sharp, well-defined edge between the treated areas and untreated areas outside the Project area. Sagebrush treatment would leave a greater variety of shrub heights and create diversity in age classes in the long term. These treatments would increase the structural complexity and diversity of remaining habitat. Removing pinyon-juniper from riparian areas would benefit wildlife by maintaining or promoting species such as willow, cottonwood, and aspen. Removal of pinyon-juniper may result in increased water flow in riparian areas, a beneficial effect for wildlife. Enhancing overall watershed health is expected to increase or maintain water flow during dry years. Removal or thinning of pinyon-juniper could initially adversely affect species associated with woodlands habitat in the short-term, but in the long-term treatment would help create better habitat, which is woodland with a mostly open canopy and a significant shrub understory. Under the Proposed Action, the likelihood of a large-scale wildland fire would be reduced, a beneficial effect to all wildlife and habitats in the Project area. Reducing the occurrence of large-scale wildland fire would lessen opportunities for exploitation by non-native plants such as cheatgrass, which adversely affect wildlife and their habitats. Creating and maintaining a mosaic of habitat types across the Project area is expected to increase and/or maintain species diversity and increase habitat resiliency to wildfire. The Proposed Action would not eliminate the potential for historic fire regimes, which is a natural disturbance process, but reduce its impact by increasing ecosystem resilience.

Under the Proposed Action, treatments would occur by hand (lop and scatter) or machinery. Operations involving the cutting and/or removal of vegetation by any of the proposed treatment methods could cause direct, short-term, localized impacts to wildlife primarily through disturbance and displacement. Any disturbance and/or displacement would likely be temporary

and would only occur in small portions of the Project area in any given year because implementation would occur over a 10 to 15 year period. Displaced individuals could likely move into similar habitat in adjacent areas during Project implementation. The amount of trees that would be removed in the Project area represents a small amount of the total trees available in the Pine Nut Mountains and the proposed tree removal would protect surrounding habitat from severe wildfire. Ground-dwelling wildlife, such as rodents and reptiles, could be trampled or their burrows destroyed by equipment or foot traffic. Most of the treatments are anticipated to occur during late summer or fall, outside of the critical breeding period for most wildlife species. As stated in Section 2.1.1.5 Resource Commitments, old-growth trees and trees with obvious signs of wildlife use, such as nest cavities or raptor nests, would be retained. All live aspen, cottonwood, and mountain mahogany would be retained. Downed trees and left over slash may enhance cover and nesting opportunities.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. While there would be no effects to wildlife or their habitats, this alternative represents a lost opportunity to enhance and restore wildlife habitat in the Project area. This alternative would continue to result in declining habitat conditions for wildlife. Current vegetative trends that affect the composition of wildlife habitat would continue; sagebrush communities and riparian areas would continue to be degraded by conifer expansion and the quality of woodland habitat would continue to be diminished by increasing tree density. Increases in woodland density also increase the risk of severe fire from high fuel loads. The occurrence of a large-scale wildland fire would adversely affect all wildlife and their habitats. A large-scale wildfire would alter or eliminate habitat in the Project area for the long-term and facilitate the spread of cheatgrass, further impacting and eliminating habitat. Overall, conifer encroachment in sagebrush and riparian communities, and woodland densification and conversion to closed-canopy stands would likely reduce the diversity and abundance of wildlife species in the Project area over time. In the long-term, wildlife species found in the Project area would likely be skewed toward those that use pinyon-juniper and/or are tolerant of a loss of understory vegetation.

4.6 BLM Sensitive Species (Animals)

Alternative A: Proposed Action

Under the Proposed Action, pinyon-juniper would be removed or thinned, which is expected to benefit sensitive species by promoting an increase in grasses, forbs, and shrubs. This would increase the abundance, diversity, and vigor of vegetation for cover and forage as well as providing increased food sources for species that eat seeds and insects, as well as an increased prey base for sensitive raptors. While proposed tree removal could adversely impact individual sensitive species that use woodland habitat in the short-term, it is expected to benefit populations of sensitive species in the long-term because it creates open canopy woodland and promotes the growth of healthy understory vegetation. Removal of trees from rangeland sites where trees are encroaching into sagebrush communities and thinning of trees from forestland sites is expected to benefit both sagebrush and woodland dependent sensitive species by increasing the available amount of high quality habitat in the Pine Nut Mountains. Treatments would avoid creating a sharp, well-defined edge between treated and untreated areas, and would increase habitat health, diversity, and resiliency across the landscape. The Proposed Action would also benefit sensitive

species by protecting treated and surrounding untreated habitat from future potential severe wildfire.

Operations involving the cutting and/or removal of vegetation by any of the proposed methods could cause direct, short-term, localized impacts to individuals through disturbance and displacement. Any disturbance and/or displacement would likely be temporary and would only occur in portions of the Project area in any given year because implementation would occur over a 10 to 15 year period. Displaced individuals could likely move into similar habitat that surrounds the Project area. The amount of trees that would be removed in the Project area represents a small amount of the total trees available in the Pine Nut Mountains. Most of the treatments are anticipated to occur during late summer or fall, outside of the critical breeding period for sensitive species. As stated in Section 2.1.1.5 Resource Commitments, disturbance to nesting sensitive birds would be avoided either because implementation would occur outside the nesting season or because nest surveys would be conducted prior to any treatment. Old-growth trees and trees with obvious signs of wildlife use, such as nest cavities or raptor nests, would be retained. All live aspen, cottonwood, and mountain mahogany would be retained. Downed trees and left over slash may enhance cover and nesting opportunities.

Bi-State DPS of Greater Sage-Grouse

Removal of pinyon and juniper trees in mapped priority habitat for sage-grouse would restore degraded breeding, nesting, brood-rearing, and summer habitats, along with improving connectivity between these seasonal habitats by expanding and opening up movement corridors used by sage-grouse. There would be no direct effects to the known lek in the Mill Canyon area because it is not in a treatment unit, but it would benefit from nearby tree removal that reduces avian predator perches and the risk of severe wildfire. Pinyon-juniper removal is expected to promote an increase in grasses, forbs, and shrubs. This would increase the abundance, diversity, and vigor of vegetation for cover and forage as well as increasing insect prey. Removing trees would reduce available perches for ravens and other avian predators, and may reduce predation impacts on sage-grouse, particularly in nesting and early brood-rearing habitat. Reducing tree expansion and densities in summer habitat would protect wet areas by decreasing tree uptake of water and thus increasing water availability. This would enhance wet areas through ground water recharge. Tree removal would also reduce fuel loads and minimize the risk of losing habitat to severe wildfire. The Proposed Action would restore habitat in the Pine Nut PMU over time and this would likely increase survival rates and help maintain or increase abundance of sage-grouse.

As stated in Section 2.1.1.5 Resource Commitments, disturbance to sage-grouse would be minimized by deferring treatment activities within 3.2 miles of an active lek during the breeding season (March 1 to May 15) and deferring treatment activities in nesting and early brood-rearing habitat (generally within 3.2 miles of an active lek) from March 15 to June 30.

Shrubs may be thinned in the Sunrise unit (Figure 2) to accomplish the fuels objectives of reducing fuel continuity and thus fire intensity potential. This unit occurs along the Sunrise Pass Road. Treating trees alone would likely not meet the objective of modifying fire behavior in this area to reduce potential fire impacts to two powerlines that supply electricity to the Carson Valley and South Lake Tahoe, provide for safer access/egress in the event of a fire, and reduce potential for large severe fire. While this unit occurs in mapped priority habitat, sage-grouse do

not currently use this area based on telemetry data currently being collected by the USGS. Brush treatment would occur adjacent to the road and brush spacing would be adjusted by treating up to 60 percent of the brush in a mosaic pattern. Thinning would prevent shrub over-dominance by managing for patchy brush with openings. Shrub stands would be managed for multiple age and size classes.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. While there would be no effects to BLM sensitive species or their habitats, this alternative represents a lost opportunity to enhance and restore habitat important to sensitive species. This alternative would continue to result in declining habitat conditions for these species. Current vegetative trends that affect the composition of sensitive animal species habitat would continue; left untreated, sagebrush communities and riparian areas would continue to be degraded by conifer expansion and the quality of woodland habitat would continue to be diminished by increasing tree density. Increases in woodland density also increase the risk of severe fire from high fuel loads. The occurrence of a large-scale wildland fire would adversely affect sensitive species and their habitats. A large-scale wildfire would alter or eliminate habitat in the Project area for the long-term and facilitate the spread of cheatgrass, further impacting and eliminating habitat. Overall, conifer encroachment in sagebrush and riparian communities, and woodland densification and conversion to closed-canopy stands would likely reduce the diversity and abundance of bird species in the Project area over time.

4.7 Migratory Birds

Alternative A: Proposed Action

Under the Proposed Action, pinyon-juniper would be removed or thinned in treatment units, which is expected to benefit birds by promoting an increase in grasses, forbs, and shrubs. This would increase the abundance, diversity, and vigor of vegetation for cover and forage as well as providing increased food sources for species that eat seeds and insects, as well as an increased prey base for raptors. While proposed tree removal could adversely impact individual woodland birds in the short-term, it is expected to benefit migratory bird populations in the long-term because it creates open canopy woodland and promotes the growth of healthy understory vegetation. Removal of trees from rangeland sites where trees are encroaching into sagebrush communities and thinning of trees from forestland sites is expected to benefit both sagebrush and woodland dependent bird species by increasing the available amount of high quality habitat in the Pine Nut Mountains. Treatments would avoid creating a sharp, well-defined edge between treated and untreated areas, and would increase habitat health, diversity, and resiliency across the landscape. The Proposed Action would also benefit migratory birds by protecting treated and surrounding untreated habitat from future potential severe wildfire.

Operations involving the cutting and/or removal of vegetation by any of the proposed methods could cause direct, short-term, localized impacts to individual birds through disturbance and displacement. Any disturbance and/or displacement would likely be temporary and would only occur in portions of the Project area in any given year because implementation would occur over a 10 to 15 year period. Displaced individuals could likely move into similar habitat that surrounds the Project area. The amount of trees that would be removed in the Project area represents a small amount of the total trees available in the Pine Nut Mountains. As stated in

Section 2.1.1.5 Resource Commitments, disturbance during the nesting season would be avoided either because implementation would occur during late summer or fall outside critical breeding periods, or because nest surveys would be conducted prior to any treatment. Old-growth trees and trees with obvious signs of wildlife use, such as nest cavities or raptor nests, would be retained. All live aspen, cottonwood, and mountain mahogany would be retained. Downed trees and left over slash may enhance cover and nesting opportunities.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. While there would be no effects to migratory birds or their habitats, this alternative represents a lost opportunity to enhance and restore habitat. This alternative would continue to result in declining habitat conditions for migratory birds. Current vegetative trends that affect the composition of migratory bird habitat would continue; sagebrush communities and riparian areas would continue to be degraded by conifer expansion and the quality of woodland habitat would continue to be diminished by increasing tree density. Increases in woodland density also increase the risk of severe fire from high fuel loads. The occurrence of a large-scale wildland fire would adversely affect birds and their habitats. A large-scale wildfire would alter or eliminate habitat in the Project area for the long-term and facilitate the spread of cheatgrass, further impacting and eliminating habitat. Overall, conifer encroachment in sagebrush and riparian communities, and woodland densification and conversion to closed-canopy stands would likely reduce the diversity and abundance of bird species in the Project area over time.

4.8 Vegetation

Alternative A: Proposed Action

Under the Proposed Action, treatments would occur by hand (lop and scatter) or machinery. During Project implementation, plants may be crushed by foot traffic or use of machinery, an adverse effect. Use of existing roads would minimize potential for vegetation to be crushed by vehicles. Most of the treatments are anticipated to occur during late summer or fall, outside of the critical growing period in the life cycle of a plant. Treatments would be focused on removal of pinyon-juniper from riparian areas and from sagebrush communities. Effects to pinyon-juniper would be adverse, however, removal of pinyon-juniper from these two habitat types would benefit riparian species such as willow, and sagebrush associated vegetative species. In the long-term, removal of pinyon-juniper from sagebrush communities may reduce the occurrence of large-scale wildland fire, a beneficial effect to all vegetative communities.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to vegetation from the Proposed Action because it would not be implemented. Current vegetative trends are likely to continue. Sagebrush and riparian communities would continue to be converted to pinyon-juniper woodlands. As the woodlands become the dominate vegetative species, most understory species would become absent, an adverse effect. Without the treatments, a large-scale wildland fire would be more likely to occur. In the event of a wildland fire, vegetation would be eliminated in the short-term and opportunities for exploitation by non-native plants such as cheatgrass would likely increase, an adverse effect.

4.9 BLM Sensitive Species (Plants)

Alternative A: Proposed Action

Under the Proposed Action, some of the units would be treated by lop and scatter. Foot traffic has the potential to crush plant species, a negligible effect. Treatments that would occur by machinery have a higher potential to crush sensitive plant species, an adverse effect. Most of the treatments are anticipated to occur during late summer or fall, outside of the critical growth period for most species. As described in Section 2.1.1.5, surveys for sensitive plant species would be conducted in mechanical treatment units that have high potential for their occurrence; where species are located, during the critical growing season, implementation would be delayed or hand thinning of trees may replace mechanized equipment. With implementation of pre-work surveys, and work primarily during the non-critical growing period, overall effects to sensitive plant species would be negligible.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to sensitive plants from the Proposed Action because it would not be implemented. Without implementation of the Proposed Action, the likelihood of large-scale wildland fire in the Pine Nut Mountains may be increased. Condition Class in the Project area would likely trend toward Class 2, a situation when fire intervals are interrupted and vegetation becomes increasingly denser, especially from conifer expansion.

4.10 Fire Management

Alternative A: Proposed Action

The overall effect of the Proposed Action would result in the intended consequences of reducing the risks of catastrophic wildfire and its potential adverse impacts to life, property, and natural resources, a beneficial effect. The structure, amount, and continuity of flammable vegetation within the Project area would be altered resulting in reduced fire intensity. The treated area would be moved from high intensity wildfire fuel conditions to mixed intensity wildfire fuels conditions. Concentrations of trees would be thinned reducing the connection from the younger trees to the older trees. The openings between tree crowns would reduce the tree torching and crowning potential. The trees which are left would be better protected from the adverse effects of wildfire, because fuel loads would be reduced and more natural breaks in fuels would enable better fire control and management. The shrub component would be thinned reducing the surface fuel quantity and continuity and reducing ladder fuels that can carry fire from the surface into tree crowns.

The Proposed Action is designed to either reduce or maintain the Condition Class for each treatment unit, meaning the Project area would be more in line with historical fire regimes and the risk of losing infrastructure or key ecosystem components would be reduced.

There is a slight risk of the equipment conducting the treatments starting a wildland fire by hitting rocks and causing sparks. This risk can be minimized by scheduling the treatment outside periods of very high to extreme fire danger or by having water available on site during treatment operations if the treatment is conducted at a high fire danger.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to fire management from the Proposed Action because it would not be implemented. Without implementation of the Proposed Action, the likelihood of large-scale wildland fire in the Pine Nut Mountains may be increased. Condition Class in the Project area would likely trend toward Class 2, a situation when fire intervals are interrupted and vegetation becomes increasingly denser, especially from conifer expansion. As a result severity and scope of wildland fire would be increased, an adverse effect.

4.11 Forest Resources

Alternative A: Proposed Action

The majority of the proposed vegetation treatments would consist of the removal of scattered pinyon-juniper trees within low density pinyon-juniper areas and in areas dominated by sagebrush that have a scattered tree component (Table 10). The 11,267 acres of treatment in the sagebrush type are areas located outside the forest and woodland delineated areas since the low stocking of trees disqualifies them for inclusion as a woodland stand. As such, approximately 13,296 acres of pinyon-juniper woodlands would be treated under the Proposed Action, which is approximately 16 percent of the forest and woodland acres within the planning area. The proposed treatments are fairly dispersed throughout the planning area, so the relative change to the scenic quality would be minimal and spread out over an implementation period of 10 to 15 years.

Table 10. Proposed Treatments by Community Type.

Community Type	Density	Treatment Acres
Pinyon-juniper	Low- less than 20 percent canopy closure	8,664
	Medium – 20 to 70 percent canopy closure	5,407
	High – greater than 70 percent canopy closure	1,225
<i>Total treatment acres of pinyon-juniper stands</i>		13,296
Sagebrush	Less than 10 percent stocking of pinyon-juniper trees	11,267
Total		24,564

Source: BLM GIS data 2013.

Approximately 6,632 acres of medium and high density pinyon-juniper woodlands would be thinned under the Proposed Action. The variable density thinning would retain a 30 to 50 percent canopy closure with large seed bearing pinyon trees as the preferred type. Trees infected with mistletoe, blister rust, and impacted by pinyon needle scale insects would be the preferred trees for removal. The thinning and sanitation of insects and diseases would result in a healthier stand and less mortality to the remaining trees. Treatment of slash by either removal, lop and scatter, hand pile/burn, and/or chipping would create stands that are less susceptible to stand replacing fire. Project design features would limit understory disturbance by directing equipment to only a portion of the treatment unit, and would largely retain existing understory grasses, forbs, and shrubs. The understory component would recover and colonize areas that were dominated by trees prior to the thinning. In high density stands where very little to no understory is present, follow up seeding treatments would be done to perpetuate this component and prevent colonization of non-natives or noxious weeds.

The proposed treatments would provide a source of forest products to the communities of Dayton, Carson City, Minden, and Gardnerville. There would be designated firewood areas

closer to these communities resulting in less trespass and more compliance with permit stipulations. The Proposed Action would also provide products to commercial entities that may be able to develop long-term markets for wood products such as small biomass facilities, firewood cooperatives, fencing manufacturers, etc. The presence of viable markets adds value to the material which can then be used to offset the cost of the treatments.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to forest resources from the Proposed Action because it would not be implemented. Not implementing the Proposed Action would miss an opportunity to make available forest resources such as firewood for personal use and enhance pinyon stands which are valuable to local tribes for their nut production. The trends of increasing stand densities, higher tree mortality, decreasing understory diversity, and increased fuel loads would continue. Willful trespass on BLM-managed lands and nearby Indian Trust Assets would likely continue unless the BLM provides new areas for firewood harvesting.

4.12 Visual Resources

Alternative A: Proposed Action

Under the Proposed Action, treatment actions would occur in VRM Class II, III and IV areas. Class III and IV allow for moderate to high level of modification to the visual landscape. Treatment within these units would not be inconsistent with the VRM classification, no further analysis is necessary. The Bald Mountain and Mount Siegel units are VRM class II, which allows for low modification to the visual character of these units. Treatment within these units would be by hand cutting only. There would be no mechanical mastication or thinning/removal. Hand cutting has the lowest impact to the visual character of the landscape as it is generally used in areas of low pinyon-juniper/acre ratio. This treatment method is not inconsistent with VRM II.

To minimize the visual contrast, treatment boundaries should mimic the natural patterns of the landscape. However, because the Bald Mountain unit is adjacent to Indian Trust Assets, portions of the treatment would be configured in a rectangular shape. The BLM would seek opportunities for partnering with adjacent landowners to conform to the pattern of the landscape, regardless of ownership.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to visual resources from the Proposed Action because it would not be implemented. In the event of a large-scale wildland fire, the visual character of the treatment units would be changed severely, an adverse effect.

4.13 Air Quality

Alternative A: Proposed Action

The potential adverse effects on air quality of the Proposed Action are expected to be minor and would be minimized by conformity to established Nevada Bureau of Air Quality protocols. The Proposed Action would result in a localized short-term effect on air quality in the Project vicinity as a result of smoke generated from pile burning and exhaust and fugitive dust emissions generated by equipment and power tools. The Proposed Action is expected to result in long-term

benefits to air quality because of decreased smoke emissions generated during uncontrolled wildfire events.

Smoke - The Proposed Action would have minor adverse effects on air quality as a result of pile burning. The expected smoke emissions generated by the proposed pile burning are expected to be dramatically less than those generated by an uncontrolled wildfire event if no fuel reduction actions are taken.

Exhaust - The Proposed Action would have minor adverse effects on air quality through the generation of exhaust emissions from equipment and power tools, such as mastication equipment and chainsaws. Emissions generated during implementation are a negligible and short-term, effect on air quality.

Dust - The Proposed Action would have minor adverse effects on air quality through the generation of dust from equipment, such as vehicles and mastication equipment. Equipment would be working infrequently on exposed soil and any dust generated would not remain airborne for any length of time.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to air quality from the Proposed Action because it would not be implemented. In the event of a large-scale wildland fire, during the event air quality in the area would likely be adversely affected.

4.14 Wild Horses and Burros

Alternative A: Proposed Action

Under the Proposed Action, vegetative treatments would occur over a 10 to 15 year period. Implementation of the Proposed Action would not alter the management of wild horses in the Pine Nut HMA, nor would the allocation of forage be changed for wild horses. As stated in Section 2.1.1.5, no treatments would occur within the Pine Nut HMA during the foaling season, generally considered March 1 to July 1. Treatments may occur over several weeks or several months depending on the unit size, complexity of terrain and access, and method of treatment. Wild horses are not confined to fenced allotments or pastures. If present, wild horses could be temporarily displaced from treatment areas or their access to forage or water may be altered, a negligible effect. In the long-term, thinning in areas of high density pinyon-juniper may marginally increase forage available for wild horses, a beneficial effect.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to wild horses because no vegetative treatments would occur. On-going activities such as off-highway vehicle (OHV) use would continue to have a negligible impact to wild horses.

4.15 Livestock Grazing

Alternative A: Proposed Action

Under the Proposed Action, vegetative treatments would occur over a 10 to 15 year period. Implementation of the Proposed Action would not alter the permitted livestock grazing in treatment units with active grazing. No changes would be made to the allocation of forage for

permitted livestock grazing. If treatments occur while an allotment is in use, livestock may be temporarily displaced, a negligible effect. The BLM would provide notification to permittees of treatment activities to minimize disruption of permitted use of the allotment. If present, livestock could be temporarily displaced from treatment areas or their access to forage or water may be altered, a negligible effect. In the long-term, thinning in areas of high density pinyon-juniper may marginally increase forage available for livestock, a beneficial effect.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to livestock grazing because no vegetative treatments would occur. On-going activities such as OHV use would continue to have a negligible impact to livestock grazing.

4.16 Invasive, Non-Native Plant Species and Noxious Weeds

Alternative A: Proposed Action

Under the Proposed Action, vegetative treatments would occur by machinery and hand. Vehicles, equipment and people have the potential to transport vegetative parts or seeds to new locations, a negligible effect. Vegetative treatments can create conditions that favor early successional species, which can lead to a competitive advantage of invasive plant species. Hand thinning would be anticipated to have less potential for increasing these species as there is a minimal amount of surface disturbance. During Project implementation, grazing animals may be temporarily displaced. Areas that livestock would be displaced into are already available for livestock grazing. Wild horses are not confined to fenced allotments or pastures and have the potential to transfer seed or vegetative material throughout the planning area. Transfer of seed or vegetative material would be a negligible effect. As stated in Section 2.1.1.7, areas treated would be monitored and invasive plant species would be identified for treatment.

Alternative B: No Action

Under the No Action Alternative, no treatments would occur. There would be no effects to invasive, non-native plants species because no vegetation treatments would occur. On-going vectors such as grazing animals and recreational uses would continue to have a potential to transfer plant materials and/or seed to new locations, a negligible effect.

4.2 Residual Effects

“Residual effects” are those adverse effects that remain after implementation of mitigation measures. No major adverse effects (“significant” per 43 CFR 1508.27) have been identified in this final EA that warrant mitigation. Measures have been incorporated into the elements of the Proposed Action to avoid and minimize adverse effects (see Section 2.1.1.5). No mitigation is necessary; there would be no residual effects.

5.0 CUMULATIVE EFFECTS

A cumulative effect is defined under NEPA as “the change in the environment which results from the incremental impact of the action, decision, or project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other action”. “Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR Part 1508.7). Past, present, and reasonably foreseeable future actions are analyzed to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the Proposed Action and/or Alternatives may have an additive and significant relationship to those effects.

Cumulative Effects Geographic Area.

The cumulative effects study area (CESA) for the Project is the planning area, an area encompassing approximately 397,983 acres (Figure 11). The CESA boundary for individual resources may be artificial (administrative) or natural (Table 11). Only those resources directly or indirectly affected by the Proposed Action and/or Alternatives are analyzed for cumulative effects.

Table 11. CESA by Resource and Summary of Effects.

Resource	Type of Effect	Acres
Cultural Resources	Indirect effects after implementation, potential long-term decrease in large-scale wildland fire that could threaten historic properties.	24,564
Native American Religious Concerns	Indirect effects after implementation through enhancement of woodlands and older age trees that are valued for pine nut production, and potential decrease in large-scale wildland fire.	24,564
Wetlands/Riparian Zones	Direct effects during implementation by removal of non-riparian vegetative resources; indirect effects by long-term changes to riparian vegetative communities.	24,564
General Wildlife, BLM Sensitive Species (Animals), Migratory Birds	Direct effects during implementation by removal of vegetative resources; indirect effects by long-term changes to sagebrush and woodland communities.	179,251
Vegetation	Direct effects during implementation by removal of vegetative resources; indirect effects by long-term changes to sagebrush and woodland communities.	24,564
BLM Sensitive Species (Plants)	Direct effects during implementation by removal of vegetative resources; indirect effects by long-term changes to sagebrush and woodland communities.	24,564
Fire Management	Indirect effects after implementation, potential long-term decrease in large-scale wildland fire.	397,983
Forest Resources	Direct effects during implementation by providing by-products such as firewood; indirect effects through enhancement of older woodlands and pine nut production.	24,564
Visual Resources	Indirect effects after implementation, minor changes in visual qualities of treatment units.	179,251
Air Quality	Direct effects during implementation as a result of increased vehicle emissions and pile burning.	397,983
Wild Horses and Burros	Direct effects during implementation from displacement.	179,251
Livestock Grazing	Direct effects during implementation from displacement.	179,251
Invasive, Non-Native Plant Species and Noxious Weeds.	Direct effects from machinery, people and grazing animals that can transport seed and/or vegetation to other locations.	179,251

Timeframe for Effects Analysis.

The lifespan of the Project is anticipated to be 10 to 15 years. Short-term cumulative effects would occur during implementation. Treatments may occur over several weeks or several months depending on the unit size, complexity of terrain and access, and method of treatment. Long-term cumulative effects would be expected to occur for several years or up to a decade after implementation of treatments in specific units.

Past, Present, and Reasonably Foreseeable Actions.

Past and Present Actions.

The Pine Nut Mountains were subject to a historic regime of wildfire caused by lightning strikes. Natural-caused fire can burn several acres to several thousand acres during one event. In more modern times, the area is also subject to man-caused wildfire in addition to natural (lightning-caused) fire. The wildfire history for the CESA is included in Table 12. Past and present vegetation treatments (Table 13) have been completed in the CESA to reduce catastrophic wildfire risks and to influence plant community composition and diversity. In response to the Bison Fire which occurred in July 2013, the BLM prepared an Emergency Stabilization and Burned Area Rehabilitation Plan (ESR) (BLM 2013). In November 2013, chaining occurred on approximately 1,350 acres, and aerial seeding occurred over 6,482 acres within the 24,140 acre burn area. The Buckskin Valley Vegetation Treatment Project is a multi-year effort to treat up to 7,000 acres on the east side of the CESA. This project was impacted by the 2013 Bison fire and implementation is on-going, however the acreage to be treated has been reduced.

Table 12. Historic Large Fires.

Fire Name	Fire Year	Fire Cause	Acres
Bison	2013	Natural	24,140
TRE	2012	Human	7,153
Springs	2012	Natural	1,191
Preacher	2012	Natural	1,076
Como	2012	Natural	768
Ray May	2011	Human	3,815
Burbank	2011	Natural	1,113
Laurel	2011	Human	318
Holbrook	2011	Human	133
Como	2008	Human	451
Adrian	2007	Natural	14,004
Badger	2005	Human	656

Fires greater than 100 acres between 2004 and 2013 (10-years) included.

Source: BLM Wildland Fire Management Information (2013).

Table 13. Past/Present Vegetation Treatments.

Project Name	Treatment Year(s)	Treatment Type(s)	Acres
Buckskin Valley	2012-2013	Lop and scatter, grinding	2,582
Upper Colony II	2010-2011	Grinding, biomass removal	1,075
Mill Canyon	2007-2010	Lop and scatter, grinding	2,383
Bluebird	2008-2009	Grinding	253
Brunswick Extension	2006	Grinding	30
Upper Colony	2006	Grinding	110
Pine Nut Road 2	2005	Thinning, chipping	18
Pine Nut Road	2004-2005	Thinning, biomass removal, grinding	200
Deer Run/Mexican Dam	2005, 2011	Grinding, seeding	90
Jack Wright 3	2005	Seeding	46
Brunswick	2004	Grinding	459

Treatments between 2004 and 2013 (10-years), not including post-fire ESR treatments.

Source: BLM GIS database (2013).

Historically, livestock grazing is known to have occurred in the CESA since the 1930's under BLM permitting, although sheep and/or cattle grazing are likely to have been occurring in the area since the late 1800's. The CESA overlaps with 17 BLM-administered grazing allotments (Figure 7). Table 14 lists the grazing allotments in the CESA.

Table 14. Grazing Allotments in the CESA.

Name	% in Planning Area	Type	Animal Month Units	Season of Use
Adriance Valley	54	Cattle	337 188 1,095	4/1 to 8/31 3/1 to 3/31 9/1 to 2/28
Buckeye	98	Cattle	1,471	4/1 to 9/15
Carson Plains/Gold Hill	.001*	Sheep	416 119	4/1 to 5/31 4/1 to 4/30
Churchill Canyon	72	Cattle	4 1,232	11/1 to 11/30 11/1 to 5/15
Churchill Butte	100	Cattle	934	10/1 to 3/31
Clifton	100	Non-use	-	-
Clifton Flat	99*	Cattle	73 284	3/1 to 3/31 11/1 to 2/28
Eldorado	100	Non-use	-	-
Fort Churchill	100	Cattle	541	4/1 to 7/31
Hackett Canyon	100	Cattle Sheep	146 39	3/15 to 6/30 3/15 to 6/30
Koch Ditch	100	Non-use	-	-
Mill Canyon	100	Non-use	-	-
Pine Nut	100	Sheep	126 261 447 316	11/1 to 11/30 7/1 to 8/31 11/1 to 11/30 6/1 to 6/30
Rawe Peak	100	Non-use	-	-
Red-Burbank	100	Non-use	-	-
Spring Gulch	100	Sheep	2,749 362 814	3/1 to 8/15 4/1 to 5/25 12/16 to 2/28
Sunrise	100	Cattle	159	3/15 to 6/15

*Likely due to an error in GIS data.

During the Comstock era of the 1860's, the timber resources of the Virginia Range to the north, Lake Tahoe region to the west, and Pine Nut Mountains was exploited. Large accessible areas were clear cut to supply the mining communities with lumber for houses, fuel for heating and steam/wood-powered mining equipment.

The Pine Nut HMA is 100 percent within the CESA (approximately 90,900 acres of public lands) (Figure 6). In 1975, the most reliable census of wild horses was completed, which identified an estimated 297 animals. In 1995 the MUD for the Appropriate Management Levels for wild horses was set at between 119-179 animals. Gather and removal of wild horses has continued since 1978. The most recent operation occurred in December 2010, although the effort was a gather and remove/treat effort. Approximately 45 mares were gathered and treated with PZP-22 (Porcine Zona Pellucida, a fertility control). Sixty-five wild horses residing outside the HMA were removed (BLM 2010). The most recent wild horse census was completed in 2012 with a population estimate of 293 animals.

Dispersed recreation has occurred throughout the CESA. General activities include: rock hounding, hunting, sightseeing, OHV use, and wildlife viewing. Members of area tribes collect pinyon pine nuts. Annually in certain areas, the BLM permits woodcutting/firewood gathering and cutting/removal of younger evergreen trees for the holiday season. The BLM permits non-commercial and commercial recreation events through its Special Recreation Permit (SRP) program. Events include motorcycle enduro races usually lasting one to three days, all-terrain vehicle tours, and horse endurance riding. Table 15 lists the past and current SRP's authorized in the CESA. In October 2012 the BLM authorized the construction of two, non-motorized loop trails. Construction of the Juniper and Pinyon Loop Trails is anticipated to start in the fall of 2014.

Table 15. Special Recreation Permits.

Name	Permit (Years)	Type	Area*
NASTR 30/50/75	2012-2016	Horse endurance ride	25-50 miles
High Desert	2013-2017	Horse endurance ride	25-75 miles
Pine Nut Cracker	2012-2016	Mountain bike race	20 miles
Pine Nut Express	2012-2013	Horse endurance ride	25-50 miles
Eastern Sierra ATV & UTV Jamboree	2012-2014	Guided OHV tours	288 miles
Valley Off-Road Racing Association	2010-2014	Competitive OHV races	75 miles
Nevada Adventure Company	2012-2016	Guided OHV tours	140 miles

* Partly or wholly in the CESA. All activities occur on existing trails and/or roads.

Most of the CESA is an "open and unlimited use" area for travel management. Although most of the vehicle use occurs on existing two-track trails and dirt roads, OHV use is also permitted. Actual numbers of users per day or per year are not available, but generally speaking the intensity of use is low and dispersed. Most use occurs during from spring to fall. No complete inventory of the travel routes within the CESA is available. The BLM maintains approximately 108 miles of routes within CESA under the Carson City District Office Transportation Plan.

Within the CESA there have been a wide range of realty actions. Rights-of-way (ROW) have been issued for overhead transmission lines, roads, communication towers (Pine Nut, Rawe Peak), and wind testing (not active). In 2005 the BLM authorized the Fort Churchill to Buckeye 120-kV Transmission Line. This project is located in the northern Pine Nut Mountains and includes a 27 mile ROW. There is no mining in the CESA, although mineral exploration may be occurring. In 2012 and 2013 BLM has the authorized closure of 13 abandon mines in the CESA.

The Pine Nut Mountains is a mix of public, private and Indian trust lands. Outside of BLM's decision-making on non-federal lands are activities such as recreation, including OHV use and hunting, residential and energy development. Bentley LLC is the largest non-federal land owner in the Pine Nut Mountains.

Over the last century average temperatures within the Great Basin have increased 0.6 – 1.1 °F. Increased precipitation has been documented in parts of Nevada, along with changes in species distribution and populations. Snowpack has been documented to be on the decline since 1950. The earlier arrival of spring runoff, greater frequencies and intensities of wildland fire and invasion of non-native species such as cheatgrass are attributable to global climate change. Winter temperatures have risen faster than any other season (Dugelby 2011, Chambers 2008).

Reasonably Foreseeable Actions.

Natural and human-caused wildland fires are likely to occur in the future. Other activities that are included in the Bison Fire ESR Plan that may be implemented in the future include the removal of wild horses within the Pine Nut HMA to allow for soil stabilization and re-growth of perennial plant species and application of herbicides to control or eradicate noxious weeds. These activities would be authorized under a separate action.

Other on-going activities in the CESA include administration of the grazing program, issuance of Special Recreation Permits for non-commercial and commercial activities, wild horse management, issuance of rights-of-way as requests are submitted to the BLM, and authorization of mining plans. In the Pine Nut Road area planning underway for the construction and maintenance of two non-motorized trails. A district-wide planning effort is underway to revise the Resource Management Plan (RMP). Prepared originally in the early 1980's, the new RMP may change allocation of resources and how they are used. A decision on the RMP is not anticipated until 2016. As a part of the RMP revision, a Travel Management Plan would be prepared, however the dates for this are unknown.

Projected warming for the Great Basin ranges from 3.6 to 9 °F over the next century. The loss of snowpack is likely to continue and may accelerate. Higher levels of carbon dioxide (CO₂) may increase plant growth and exacerbate the spread of invasive species such as cheatgrass which has great flammability. The frequency and spread of fire is likely to grow. Pinyon-juniper would likely respond favorably to the increased CO₂ and crown fires may increase. Insect outbreaks could increase during warming episodes (Chambers 2008).

Effects Analysis.

The BLM did not analyze cumulative effects for the following resources because the BLM determined there would not be direct or indirect effects caused by the Proposed Action and Alternatives, or the because the resource is not present. Resources not analyzed for cumulative effects include: environmental justice, farm lands (prime or unique), floodplains, threatened or endangered species, wastes, hazardous or solid, wild and scenic rivers, wilderness/wilderness study area, global climate change, greenhouse gas emissions, land use authorizations, lands with wilderness characteristics, minerals, paleontological, recreation, socioeconomics, soils, and travel management.

Cultural Resources

Under the Proposed Action, historic properties would be avoided during implementation. There would be no cumulative effects to historic properties. Under the No Action Alternative, no treatments would occur, there would be no short-term cumulative effects to historic properties. In the event of a large-scale wildland fire, historic properties would be impacted, a long-term adverse cumulative effect.

Native American Religious Concerns

Under the Proposed Action and in compliance with the provisions of the approved PA, tribes would be involved in the identification of traditional resource values. When traditional resources are identified, treatments may be modified or moved, resulting negligible or no long-term cumulative effects. Under the No Action Alternative, no treatments would occur, there would be no short-term cumulative effects to Native American religious concerns or access to traditional resources. In the event of a large-scale wildland fire, traditional resource values would be impacted, a long-term adverse cumulative effect.

Wetlands/Riparian Zones

Under the Proposed Action removal of pinyon-juniper trees from riparian areas would likely improve willow, cottonwood and aspen stands, a long-term beneficial cumulative effect. Under the No Action Alternative, no treatments would occur, there would be no short-term cumulative effects to riparian areas. In the event of a large-scale wildland fire, vegetative resources in riparian areas would be impacted, a long-term adverse cumulative effect.

General Wildlife

Under the Proposed Action, wildlife associated with pinyon-juniper woodlands would be negligibly cumulatively impacted in the short-term. Those wildlife species associated with sagebrush and riparian communities would benefit cumulatively in the long-term by the removal of pinyon-juniper trees. Under the No Action Alternative, no treatments would occur, there would be no short-term cumulative effects to wildlife or their habitats. In the event of a large-scale wildland fire, wildlife would be adversely impacted in the short-term during the event, and their habitats would be adversely affected over the long-term. Overall cumulative effects to wildlife from the No Action Alternative would be adverse.

BLM Sensitive Species (Animals)

Under the Proposed Action, sensitive animal species associated with pinyon-juniper woodlands would be negligibly cumulatively impacted in the short-term. Those sensitive animal species

associated with sagebrush and riparian communities would benefit cumulatively in the long-term by the removal of pinyon-juniper trees. Under the No Action Alternative, no treatments would occur, there would be no short-term cumulative effects to sensitive animals or their habitats. In the event of a large-scale wildland fire, sensitive animals would be adversely impacted in the short-term during the event, and their habitats would be adversely affected in the long-term. Overall cumulative effects to sensitive animals from the No Action Alternative would be adverse.

Migratory Birds

Under the Proposed Action, migratory birds associated with pinyon-juniper woodlands would be negligibly cumulatively impacted in the short-term. Those migratory birds associated with sagebrush and riparian communities would benefit cumulatively in the long-term by the removal of pinyon-juniper trees. Under the No Action Alternative, no treatments would occur, there would be no short-term cumulative effects to migratory birds or their habitats. In the event of a large-scale wildland fire, migratory birds would be adversely impacted in the short-term during the event, and their habitats would be adversely affected in the long-term. Overall cumulative effects to migratory birds from the No Action Alternative would be adverse.

Vegetation

Under the Proposed Action, short-term adverse cumulative effects would occur by the removal of pinyon-juniper trees that are encroaching into sagebrush and riparian communities. At the same time, those communities would benefit in the long-term cumulatively by the removal of those trees. Under the Proposed Action, the thinning of pinyon-juniper woodlands would cumulatively benefit those retained trees by reducing the scope and intensity of large-scale wildland fires. Under the No Action Alternative, no treatments would occur, there would be no short-term cumulative effects to vegetation. In the event of a large-scale wildland fire, vegetative communities would be adversely impacted in the short and long-term. These types of fire have the capability of replacing native species with non-native species or weeds across the broad landscape, an adverse cumulative effect. Current vegetative trends would continue under the No Action Alternative, pinyon-juniper would dominate and replace existing sagebrush communities, and would crowd out willow, cottonwood and aspen stands in riparian areas, a cumulatively adverse effect.

BLM Sensitive Species (Plants)

Under the Proposed Action, short-term negligible cumulative effects would occur during Project implementation. In the long-term, sensitive plant species would benefit cumulatively by the removal of pinyon-juniper. Under the Proposed Action, the thinning of pinyon-juniper woodlands would cumulatively benefit sensitive plant species by reducing the scope and intensity of large-scale wildland fires. Under the No Action Alternative, no treatments would occur, there would be no short-term cumulative effects to sensitive plant species. In the event of a large-scale wildland fire, sensitive plant species would be adversely impacted in the short and long-term. These types of fire have the capability of replacing native species with non-native species or weeds across the broad landscape, an adverse cumulative effect. Current vegetative trends would continue under the No Action Alternative, pinyon-juniper would dominate and replace existing sagebrush communities and associated sensitive plant species, a cumulatively adverse effect.

Fire Management

Under the Proposed Action, through a combination of thinning and pinyon-juniper removal from sagebrush and riparian communities, the occurrence of wildland fire would likely be smaller in scale, and native vegetative communities would be more resilient and capable of successful post-fire response. The potential of the replacement of native species with non-natives and weeds would be reduced. Residential areas adjacent to public lands would likely benefit from thinning treatments in the wildland urban interface. Overall cumulative effects for fire management are beneficial. Under the No Action Alternative, no treatments would occur, there would be no change in the current fire conditions in the planning area. The occurrence of large-scale wildland fire scale and scope would likely increase, an adverse cumulative effect. Large landscape fires provide the opportunity for the replacement of native species with non-natives or weeds, a long-term adverse cumulative effect.

Forest Resources

Under the Proposed Action, forest resources such as firewood and other products would be made available, a short-term beneficial cumulative effect. Under the No Action Alternative, no treatments would occur, there would be no change in the current availability of forest resources through regular BLM permitting processes. In the event of large-scale wildland fire, forest resources such as pine nuts would likely be lost for many years, an adverse cumulative effect. Fire events kill trees and those trees could be made available for harvest or firewood cutting, a short-term beneficial cumulative effect.

Visual Resources

Under the Proposed Action, in VRM II areas there would be negligible cumulative effects to the visual character in the short-term due to thinning and removal of pinyon-juniper trees. This contrast would be minimized by mimicking the terrain during treatment. Reducing in scale and/or scope a wildland fire would ensure the existing visual character of the treatment units would remain intact, or minimally impacted. Overall, cumulative effects to visual resources is neutral. Under the No Action Alternative, no treatments would occur, there would be no change to the visual character of the treatment units. A large-scale wildland fire, especially a crown-fire, would adversely affect the visual quality of the burn area, an adverse cumulative effect. Initially soil surfaces and trees would be blackened, a major contrast to the current character of the treatment units, a short-term adverse cumulative effect. Depending largely on precipitation levels and vegetative response, dead standing trees are likely to remain visible for many years. If post-burn areas are successfully seeded, the visual contrast would be somewhat lessened, although evidence of fire may be visible for a decade or more, an adverse cumulative effect.

Air Quality

Under the Proposed Action, treatment actions would lessen the opportunity for large-scale wildland fire. Once treatments have been implemented, the scope and intensity of fire may be reduced, resulting in less smoke and pollutants during subsequent fire events. During implementation of the Proposed Action, pile burning would be conducted to remove residual vegetative materials, and there would be some increase in emissions from vehicles and equipment. This activity would cause short-term negligible cumulative effects to air quality. The opportunity for an inversion to occur, which could severely impact air quality in urban areas,

would be avoided by conducting pile burning during non-summer seasons. Overall cumulative effects to air quality would be negligible. Under the No Action Alternative, no treatments would occur. Emissions from recreational vehicles and other activities in the planning area would continue. During a wildland fire event, there would be a sharp increase in smoke and its associated pollutants depending on a fire's scope and intensity, an adverse cumulative effect. After full fire suppression, air quality would likely return to pre-fire conditions.

Wild Horses and Burros

Under the Proposed Action, treatment actions would temporarily disturb and displace wild horses that may be present, a short-term negligible cumulative effect. In the long-term, in areas of high density pinyon-juniper, thinning may increase available forage, a beneficial cumulative effect. Under the No Action Alternative, current vegetative trends would likely continue, shifting sagebrush communities to pinyon-juniper woodlands. Over the long-term this trend may decrease forage availability for wild horses, a negligible cumulative effect.

Livestock Grazing

Under the Proposed Action, treatment actions would temporarily disturb and displace livestock that may be present, a short-term negligible cumulative effect. In the long-term, in areas of high density pinyon-juniper, thinning may increase available forage, a beneficial cumulative effect. Under the No Action Alternative, current vegetative trends would likely continue, shifting sagebrush communities to pinyon-juniper woodlands. Over the long-term this trend may decrease forage availability for livestock, a negligible cumulative effect.

Invasive, Non-Native Plant Species

Under the Proposed Action, seed or vegetative material may be transferred to new locations by machinery or people, a negligible cumulative effect. Under the No Action alternative, on-going activities such as OHV use and grazing animals would continue to serve as potential vectors to transfer seeds or vegetative material to new locations, a negligible cumulative effect.

6.0 CONSULTATION AND COORDINATION

6.1 Public Review and Comment

On October 22, 2013, the BLM provided 30-days public review and comment of the draft EA. Notification letters were sent to 97 individuals, organizations or agencies on the Project mailing list. A press release on the draft EA's availability was issued on October 21, 2013. Articles appeared in *The Record Courier* on October 21, 2013, and the *Reno Gazette-Journal* on October 22, 2013. On October 28, 2013 the BLM issued a press release announcing the extension of the comment period. On November 11, 2013 the press release extending the comment period appeared in the *Las Vegas Sun* and News Daily (web version). On November 12, 2013 the press release extending the comment period appeared in *Carson Now* (web version) and the *Reno Gazette-Journal*. On November 6, 2013 the BLM hosted a workshop at the East Fork Fire Station in Fish Springs. Staff were available to answer questions and maps of the Project area were provided. A presentation on the Project was provided by the BLM. Thirteen people attended the workshop. The extended comment period closed on November 29, 2013. The BLM received 17 comments to consider. Comments and Responses to Comments are found in Appendix D.

6.2 Individuals, Tribes, Organizations and Agencies Consulted

6.2.1 Individuals

Alexakos, Steven & Theresa
Ambrosini, Richard
Amoruso, Vincent & Mary
Andrews, Dennis & Sherry
Bardecker, Jerald & Barbara
Bartholomew, Donald
Beard, George & Christine
Boggs, Kenneth & Marci
Bracket, John
Breedon, James
Brown, Gerald & Kira
Brueckner, Allen & Cherylene
Burger, Stephen & Lori
Campbell, Robert & Patricia
Carlson, Anita
Clark, Terri & Lawrence
Clifford, Loraine
Cook, Stephen & Kathleen
Daniels, John & Bette
Daphne, Orea
Deleme, Frederick & Loretta
Dibble, Calvin & Linda
Downer, Craig C.
Douglas, Kenneth & Sharon
Eberhard, Ronald & Patricia

Fagan, Mel & Meredith
Francis, Roy & Elisabeth
Gamble, David & Diane
Gaureault, Joe & Wende
Gearhart, Dan & Judith
Gervie, Charles & Mary
Gibbons, Michael & Barbara
Gillett, Lucile
Gregg, Kathy
Gronewold, Don & Linda
Henningsen, Michael & Marshall
Heth, Jordan
Holdeman, Darr & Tammy
Hudson, Julie
Irvine, Hal & Karen
Jewkes, David & Judy
Kazen, James & Yvonne
Krocker, Gerald, & Judith
Lafferty, Mary Carolynn
Maki, Wayne & Diane
McBride, Delia
McNeilly, Clyde
Minor, Peter & Susan
Moglich, Mark & Susie
Moxley, Clarence & Diana
Mueller, John & Lisa
Murray, Francis & Stella
Noble, Steve
Orberg, Robert & Sharon
Oster, Sherry
Parrott, Stephen
Perretta, Larry & Cheryl
Peyton, John
Pollock, Scott & Maureen
Potosky, John & Debra
Ratekin, Gary & Jacqueline
Rau, Raymond & Wes
Rehfeldt, Nancy
Rich, David & Ruth
Rogalski, Roger
Rogers-McCabe, Deborah
Rowland, Nancy
Russell, Darrell & Patricia
Schnock, Carl & Marie
Sims, Joe
Smith, Thomas & Cindy

Spain, Theresa
Spivey, Jerry & Judy
Struwe, Steven & Cecile
Sutherland, Thomas
Swartz, Allan & Carol
Swenson, Elaine
Tahti, Thane & Crecelius
Thompson, Lemuel & Jennie
Twichell, Paul & Matthews
Warner, Barbara
Washington, Milton & Bonnie
Young, Desna

6.2.2 Tribes

Washoe Tribe of Nevada and California
Yerington Paiute Tribe

6.2.3 Organizations

American Wild Horse Preservation Campaign
Bently Family Ltd Partnership
Borda Land and Sheep Company
F.I.M. Corp
Great Basin Bird Observatory
H Bar C Cattle Co., Inc.
Hodges Transportation Inc.
NV Energy
Resource Concepts Inc.
Ricci Family Limited Partnership
Triple B Development LLC
Western Watersheds Project

6.2.4 Agencies

Bureau of Indian Affairs
City of Carson City, Nevada
East Fork Fire and Paramedics District
Natural Resources Conservation Service
Nevada Department of Agriculture
Nevada Natural Heritage Program
Nevada Department of Wildlife
Nevada State Clearinghouse (multiple State agencies)
U.S. Fish and Wildlife Service
U.S.G.S. Western Ecological Research

6.3 List of Preparers

BLM staff that contributed to this document.

Name	Resource
Tim Roide	Project Lead, Fire Management, Air Quality
Brian Buttazoni	NEPA Compliance, Visual Resources, Cumulative Effects
Coreen Francis	Forestry
Rachel Crews	Cultural Resources, Native American Religious Concerns
Katrina Leavitt	Vegetation
Pilar Ziegler	General Wildlife, BLM Sensitive Species (Animals), Migratory Birds
Dean Tonenna	BLM Sensitive Species (Plants), Non-Native Invasive Plant Species
Niki Cutler	Wetlands/Riparian Zones

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Appendix A - BLM Sensitive Animals and Migratory Birds

BLM Sensitive Animals and Migratory Birds That May be Present or Their Habitat May be Present in the Planning Area.

Common Name	Scientific Name	BLM Sensitive Species	BLM Migratory Bird
Big brown bat	<i>Eptesicus fuscus</i>	Y	-
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	Y	-
Brewer's sparrow	<i>Spizella breweri</i>	Y	Y
Burrowing owl	<i>Athene cunicularia</i>	Y	N
California myotis	<i>Myotis californicus</i>	Y	-
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>	Y	-
Ferruginous hawk	<i>Buteo regalis</i>	Y	Y
Fringed myotis	<i>Myotis thysanodes</i>	Y	-
Golden eagle	<i>Aquila chrysaetos</i>	Y	Y
Green-tailed towhee	<i>Pipilo chlorurus</i>	N	Y
Greater Sage-Grouse	<i>Centrocercus urophasianus</i>	Y	N
Little brown bat	<i>Myotis lucifugus</i>	Y	-
Loggerhead shrike	<i>Lanius ludovicianus</i>	Y	Y
Long-eared myotis	<i>Myotis evotis</i>	Y	-
Long-legged myotis	<i>Myotis volans</i>	Y	-
Mourning dove	<i>Zenaida macroura</i>	N	Y
Northern goshawk	<i>Accipiter gentilis</i>	Y	N
Pale kangaroo mouse	<i>Microdipodops pallidus</i>	Y	-
Pallid bat	<i>Antrozous pallidus</i>	Y	-
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	Y	Y
Sage sparrow	<i>Amphispiza belli</i>	N	Y
Sage thrasher	<i>Oreoscoptes montanus</i>	Y	Y
Swainson's hawk	<i>Buteo swainsoni</i>	Y	N
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Y	-
Virginia's warbler	<i>Vermivora virginiae</i>	N	Y
Western pipistrelle bat	<i>Pipistrellus hesperus</i>	Y	-
Western small-footed myotis	<i>Myotis ciliolabrum</i>	Y	-
Yuma myotis	<i>Myotis yumanensis</i>	Y	-

Appendix B - Firewood Permit Stipulations

For personal use firewood permits the following stipulations will apply:

- Motorized equipment or vehicles are not allowed off existing roads. Permittee parking shall not block traffic or impeded fire or emergency vehicles. Wheelbarrows, other hand powered carts, and winches may be used to bring wood to the permittee's vehicle;
- The permittee must avoid causing damage or disturbance to antiquities and cultural resources, wetlands, riparian areas, plants, and natural resources, and roads, fences, and other improvements;
- Stumps must be left no higher than six inches above the ground surface on the uphill side. Trees must not be uprooted by pushing or pulling;
- Slash (limbs and tops) should be cut and scattered so that it lies no higher than 18 inches above the ground and is not concentrated;
- The permittee is responsible for removing all his or her own garbage and litter; and
- A working spark arrestor is required for each power saw in use. The permittee is required to have a shovel in their possession during fire season.

The following stipulations will be applied to commercial firewood permits:

- Equipment use will not be allowed during periods of high soil water content in order to avoid damage to the soil resource;
- Main access corridors shall be spaced approximately 50 feet apart and forest products will be yarded to these access corridors with at least one end suspended at all times. Driving equipment to every tree will not be allowed in order to minimize the damage to soils, shrubs and grasses;
- Access corridors will be carefully designed in partial cutting units to avoid damaging leave trees from yarding activities;
- Equipment approved for use will have low ground pressure ratings or other pertinent designs that limit compaction of soils;
- Landings (product processing areas) will be designated by BLM and shall not exceed 1 acre in size and will not cover more than 5% of the harvest unit.
- The permittee must avoid causing damage or disturbance to antiquities and cultural resources, wetlands, riparian areas, plants, and natural resources, and roads, fences, and other improvements;
- Stumps must be left no higher than six inches above the ground surface on the uphill side. Trees must not be uprooted by pushing or pulling;
- Slash (limbs and tops) should be cut and scattered so that it lies no higher than 18 inches above the ground and is not concentrated;
- The permittee is responsible for removing all his or her own garbage and litter. Hazardous material such as fuel and oil shall be stored in a leak proof location or on a lined containment berm; and
- A working spark arrestor is required for each power saw in use. The BLM reserves the right to limit the hours of equipment operation during periods of high fire danger to prevent an operator cause fire. The permittee is required to have a shovel and a fire

extinguisher for every power saw and piece of equipment. In larger operations, there may be an additional requirement for a BLM approved water pumper to be located on site during operations.

Appendix C – Substantive Revisions Made to the Draft EA Outside of Public Comments

The following revisions were made to the draft EA and were incorporated into this final EA:

1. Corrected the information for the Eldorado Canyon unit in Section 2.1.1.2 on page 8, from “seven” to “nine” discontinuous sub-units, and corrected the misspellings of Eldorado Canyon;
2. In Section 2.1.1.2, minor edits were made to treatment unit descriptions to provide additional context on the occurrence and use of treatment units by sage-grouse, the occurrence of pinyon-juniper encroachment, and characterization of riparian areas and historic grazing;
3. Table 2 (Summary of Acres by Treatment Method) was added in Section 2.1.1.3 to provide additional context on the number of acres that may be treated by each treatment method;
4. In Section 3.7, information on the occurrence of migratory birds was added for additional context; and
5. Tables 14 (Grazing Allotments in the CESA) and 15 (Special Recreation Permits) were added to the Cumulative Effects (Section 5.0) for additional context.

None of the above revisions made any change to an alternative or to the analysis contained within an alternative.

Appendix D – Comments and Responses to Comments

The BLM received 17 comment emails or letters to consider on the draft EA. All comments the BLM received were reviewed and categorized. Although not required for an EA by regulation, an agency may respond to *substantive* and *timely* comments received.

Substantive comments:

1. question, with reasonable basis, the accuracy of information in the EA;
2. question, with reasonable basis, the adequacy of, methodology for, or assumptions used for the environmental analysis;
3. present new information relevant to the analysis;
4. present reasonable alternatives other than those analyzed in the EA; and/or
5. cause changes or revisions in one or more of the alternatives.

No response is necessary for non-substantive comments (BLM 2008). The BLM received 11 non-substantive comment emails or letters that are not addressed. *Substantive* and *unique* comments are summarized below. Repeated substantive comments are not summarized.

#	Comment	BLM Response
1	<u>Carson City</u> requested the BLM consider two locations (Mexican Dam and Pinion Hills neighborhood) for inclusion as treatment units in the wildland urban interface.	Comment noted. The BLM has planned, implemented and maintained treatments in the locations recommended.
2	The <u>State Historic Preservation Officer</u> requested information on the availability of the Programmatic Agreement for public input.	The draft Programmatic Agreement was not available when the draft EA was published. The BLM provided a 30-day public input period on the draft Programmatic Agreement. Notification was made through the media, to State agencies through the Nevada State Clearinghouse, and to the “interested public.”
3.	The <u>Nevada Department of Wildlife</u> requested the BLM consider adaptive management, that additional areas may warrant treatment as the Project is implemented. NDOW also recommended seeding after pile burning.	Comments noted.
4.	<u>C. Downer</u> stated that the BLM failed to consider the benefits of wild horses residing in the Pine Nut Mountains.	Comments are outside the scope of this final EA.

#	Comment	BLM Response
5.	<u>C. Downer</u> stated that the BLM failed to consider the beneficial value of pinyon-juniper forests.	Comments are outside the scope of this final EA.
6.	<u>C. Downer</u> stated that the BLM may be considering the sage-grouse too narrowly and neglecting other species.	Section 4.5 addressed the effects on General Wildlife, Section 4.6 addressed the effects on BLM sensitive species, and Section 4.7 addressed the effects on Migratory Birds. The BLM evaluated the beneficial and adverse effects from implementation of the Proposed Action on all species that may be present in the Project area.
7.	<u>C. Downer</u> stated that he disagrees that pinyon-juniper are expanding at an unusual rate. He further states that “encroachment” is mere restoration into previously occupied areas.	The BLM provided its rationale for this Project in Section 1.1, which included citing literature characterizing the expansion of pinyon-juniper since the 1860’s and the adverse impacts of such expansion.
8.	<u>C. Downer</u> also stated that there is too much emphasis on livestock grazing, hunting, mining etc. on public lands.	Comments are outside the scope of this final EA.
9.	<u>Western Watersheds Project</u> presented the BLM with two new alternatives to consider, a Reduced Grazing/Habitat Restoration Alternative, and a Science-based Conservation Alternative.	Both alternatives have been included in Section 2.1.3 of this final EA.
10.	<u>Western Watersheds Project</u> stated that given: 1) the scale of the project; 2) the scientific uncertainty underlying the project; and 3) the potentially significant impacts from the proposed treatments, an environmental impact statement (EIS) should be prepared.	1) The BLM disagrees that the scale of this Project warrants an EIS. Over a 10 to 15 year period, approximately 24,564 acres would be treated. The BLM anticipates based on funding availability, each year treatments would involve approximately 2,000 acres. The planning area (397,889 acres) was reviewed for potential treatment units. Treatments would occur on 6% of the planning area over the life of the Project, or 0.7% of the planning area per year (context added in Section 2.1.1.6); Table 2 has been added in Section 2.1.1.3 for context, describing the number of acres involved with each treatment method. Eighty-one percent of the Project area would be subject to the least severe vegetative treatments – hand thinning (selective/non-selective); only 19% of the Project area would be subject to the more intensive treatment method of mechanical mastication.

		<p>2) the BLM acknowledges that there are differences of scientific opinion in the literature regarding the fire regime in the Great Basin, however the fire regime was only one of multiple factors used in determining the treatment units and Project objectives; the direct and indirect effects from vegetative treatments have been reasonably disclosed and analyzed in the final EA; restoration of the historic fire regime in the Pine Nut Mountains was not listed as an objective in Section 1.2; and</p> <p>3) in Section 2.1.1.5 the BLM included 20 resource commitments, many of which minimize or avoid the potential impacts from implementation of this Project; Western Watersheds Project did not identify any new commitments for the BLM to consider where Western Watersheds Project viewed potentially significant effects may occur. The final EA includes the analysis necessary by the BLM to describe that it has taken a “hard look” at the potential significant environmental consequences from the Proposed Action. The final EA has identified all relevant areas of environmental concern, and included measures to ensure that significant effects would not occur during implementation.</p> <p>Table 2 has been added in Section 2.1.1.3 to provide context that 81% percent of the Project area would be treated by the least severe treatment method – hand thinning (selective/non-selective). Only 19% of the Project area would be subject to the more intense treatment method of mechanical mastication.</p> <p>The BLM would note that during the public review of the draft EA, the BLM made a “draft” Finding of No Significant Impact (FONSI) available for public review – no comments on the draft FONSI were received from Western Watersheds Project.</p>
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#	Comment	BLM Response
11.	<u>Western Watersheds Project</u> stated that the BLM failed to show on maps historic woodland habitat and pinyon-juniper habitat that would be protected.	The BLM has revised the figures. Figure 3 shows Existing Vegetation Cover Type and Figure 5 shows Proposed Treatment Methods by treatment unit. The effects analysis contained in Section 4.11 included a discussion on all density classes of pinyon-juniper woodlands present in the Project area.
12.	<u>Western Watersheds Project</u> stated that the BLM failed to describe the characteristics of the extant pinyon-juniper communities.	The BLM has revised the figures. Figure 3 shows Existing Vegetation Cover Type.
13.	<u>Western Watersheds Project</u> stated that the BLM failed to provide general locations of rare plant populations and distribution.	Known populations for all BLM sensitive plant species have not been mapped in the Project area. Therefore in Section 2.1.1.5 the BLM has committed to pre-work surveys in mechanically treated areas with a high likelihood of their occurrence. When occupied habitat is located, implementation may be delayed, hand treatment of trees may replace use of mechanized equipment, or the occupied habitat may be delineated as an avoidance/exclusion area.
14.	<u>Western Watersheds Project</u> stated that the BLM failed to consider the role of livestock grazing and other BLM authorized activities in any changes in pinyon/juniper distribution.	Comments are outside the scope of this final EA. Assessing the changes to pinyon-juniper distribution caused by livestock grazing would occur during the NEPA process when the BLM renews a term livestock grazing permit. Likewise, other BLM authorized activities that may cause a change to the distribution of pinyon-juniper would occur during the NEPA process when such action is analyzed.
15.	<u>Western Watersheds Project</u> stated that the BLM failed to describe Bi-State population trends.	A description of Bi-State population trends is outside the scope of this final EA as the Bi-State population exists outside the planning area and in two states. The BLM recognized in the draft EA the species status as a BLM sensitive species, and this final EA reflects the proposed listing by the FWS. Information on the population trend within the Pine Nut PMU has been added in Section 3.6.
16.	<u>Western Watersheds Project</u> stated that the BLM failed to describe the condition of sage-grouse winter, breeding, nesting, and brood-rearing habitats.	As stated in Section 3.6, overall condition of sage-grouse habitat in the PMU is affected and threatened by wildfire and pinyon-juniper encroachment. Additional context has been added to Section 3.6.

#	Comment	BLM Response
17.	<u>Western Watersheds Project</u> stated that the BLM claim that fire is the main disturbance agent is not scientifically based.	Section 3.10 has been revised.
18.	<u>Western Watersheds Project</u> stated that the BLM failed to make maps or other statistical data available concerning Fire Condition Classes 1 and 2.	The BLM has revised Section 3.10 and the figures. Condition class 3 was defined. Figure 4 depicts Existing Fire Regime Condition Class. The BLM used Fire Condition Class among multiple other factors in determining treatment units.
19.	<u>Western Watersheds Project</u> stated that the BLM did not explain why treatments are not being proposed in areas of Condition Class 3.	The BLM has revised Section 3.10 to clarify the relative difficulty to maintain/restore the different condition classes.
20.	<u>Western Watersheds Project</u> stated that estimated historic fire rotations were 171-342 years for Wyoming big sagebrush and 137-217 years for mountain big sagebrush.	There are differences with scientific opinion with regards to fire return intervals in the Great Basin. The BLM has revised Section 3.10 to include a new reference. Restoration of historic fire regime was not listed as an objective in Section 1.2. The BLM has reviewed existing literature and has reasonably analyzed the data and provided a sufficient rationale for this Project.
21.	<u>Western Watersheds Project</u> stated that livestock grazing is impacting some riparian areas and have downcut stream channels.	Impacts to riparian areas caused by livestock grazing area outside the scope of this final EA. This text referenced in Section 2.1.1.2 under “Bald Mountain” has been clarified to indicate the observations were of “historic” and “past heavy grazing.”
22.	<u>Western Watersheds Project</u> stated the BLM has failed to analyze the actual impacts to sage-grouse.	The BLM analyzed the beneficial and adverse impacts to sage-grouse in Section 4.6. Impacts were assessed by short-term during Project implementation and long-term.
23.	<u>Western Watersheds Project</u> stated that the BLM is deficient in describing prescribed fire (pile burning). The draft EA did not describe the size and extent of pile burning.	The BLM has revised Section 2.1.1.3 and removed references to “prescribed fire.” Broadcast prescribed fire is not included in the Proposed Action. Additional information for context has been added to Section 2.1.1.3 under Pile Burning.

#	Comment	BLM Response
24.	<p><u>Western Watersheds Project</u> stated that the BLM failed to consider:</p> <p>1) that pinyon-juniper removal may result in exposure of fencing;</p> <p>2) the extent of newly exposed fencing should be analyzed; and</p> <p>3) cumulative effects of the existing fences and livestock grazing should also be included.</p>	<p>1) and 2) the analysis of fencing and its potential impacts to wildlife is completed during the authorization for the installation of such fencing (renewal of a term livestock grazing permit), as such this analysis is outside the scope of this final EA; and</p> <p>3) assessing the cumulative effects from fencing and livestock grazing are outside the scope of this final EA. This evaluation is appropriately analyzed during the NEPA process when the BLM renews a term livestock grazing permit.</p>
25.	<p><u>Western Watersheds Project</u> stated that pinyon-juniper removal may facilitate raven predation on sage-grouse by opening line of sight from fence posts.</p>	<p>Impacts to sage-grouse caused by fencing are outside the scope of this final EA and are appropriately analyzed during the NEPA process when the BLM renews a term livestock grazing permit. The BLM would note the active lek in the planning area is in the Mill Canyon Grazing Allotment, which has no fencing, therefore hand thinning in the Mill Canyon Unit would not result in exposed fencing adjacent to the active lek.</p>
26.	<p><u>Western Watersheds Project</u> stated that the BLM has not justified the use of seed mixes including non-native seeds.</p>	<p>Section 2.1.1.3 has been revised to clarify that native seed would be used.</p>
27.	<p><u>Western Watersheds Project</u> stated that the BLM failed to consider:</p> <p>1) the displacement of livestock grazing into sage-grouse habitat; and</p> <p>2) the impact on sage-grouse by disturbing hens leading to nest abandonment or predation by cattle on sage-grouse eggs.</p>	<p>1) Analysis has been added in Section 4.15 assessing the displacement of livestock caused by treatment activities; and</p> <p>2) as stated in Sections 2.1.1.5 and 3.6, there are no known active leks in any treatment unit. The active lek in the planning area is in the Mill Canyon Grazing Allotment, which is in non-use. Impacts to sage-grouse caused by livestock grazing are outside the scope of this final EA and are appropriately analyzed during the NEPA process when the BLM renews a term livestock grazing permit.</p>
28.	<p><u>Western Watersheds Project</u> stated that the BLM failed to incorporate measures to avoid the above impacts.</p>	<p>The BLM included 20 measures in Section 2.1.1.5 to minimize or avoid adverse impacts to all wildlife species, including sage-grouse.</p>
29.	<p><u>Western Watersheds Project</u> stated that the Pine Nut Mountain region is historic habitat for pygmy rabbit.</p>	<p>Section 3.6 has been revised to include a characterization of pygmy rabbit <i>non-occurrence</i> in the Project area.</p>

#	Comment	BLM Response
30.	<u>Western Watersheds Project</u> stated that there is no evidence that vegetative treatments benefits pronghorn, mule deer and pygmy rabbits.	The BLM assessed the potential beneficial and adverse impacts to all wildlife species in Sections 4.5, 4.6 and 4.7.
31.	<u>Western Watersheds Project</u> stated that the BLM failed to incorporate measures to avoid these impacts.	The BLM included 20 measures in Section 2.1.1.5 to minimize or avoid adverse impacts to all wildlife species.
32.	<u>Western Watersheds Project</u> stated that the draft EA failed to: 1) describe the preferred habitats of BLM sensitive plants; 2) areas that have high potential for occurrence; 3) fails to describe the known number of sensitive plant populations and 4) fails to evaluate the impacts to known plant populations.	1) Section 3.9 has been revised to include descriptions of the habitat types for BLM sensitive plant species that may be present; 2) and 3) known populations have not been mapped in the Project area for all sensitive plant species; and 4) potential beneficial and adverse impacts to BLM sensitive plant species were included in Section 4.9. Due to the uncertainty of BLM sensitive plant species occurrence, the BLM in Section 2.1.1.5 committed to pre-work surveys in mechanically treated areas with a high likelihood of their occurrence.
33.	<u>Western Watersheds Project</u> stated that there are several vectors to the spread of cheatgrass, including: 1) mechanical disturbance and vehicles; and 2) livestock grazing.	1) As stated in Section 2.1.1.7, post-treatment monitoring would occur to identify for future treatment, infestations of noxious weeds including cheatgrass; and 2) the potential for livestock to transport seed has been addressed in Section 4.16 to the extent that treatment activities cause the displacement of livestock. Section 4.16 also addresses the potential for wild horses displaced by treatment actions to spread invasive plant species and noxious weeds.
34.	<u>Western Watersheds Project</u> stated that the BLM failed to describe what type of treatments would be adjacent to the Burbank Wilderness Study Area.	As stated in Table 1, the treatment method in the Bald Mountain unit would be hand cutting. There would be no mechanical treatment in this unit.
35.	<u>Western Watersheds Project</u> questioned if non-native seeding would be done in this unit.	Section 2.1.1.3 has been revised to clarify that native seed would be used on a limited basis. It is unlikely that seeding would be necessary in hand treated units.

#	Comment	BLM Response
36.	<u>S. Oster</u> stated that be BLM should not use aerial spraying with any herbicides.	Comments are outside the scope of this final EA. The Proposed Action does not include authorization of the use of herbicides.
37.	<u>American Wild Horse Preservation Campaign</u> stated the BLM failed to consider the impacts to wild horses.	Analysis has been added in Section 4.14 that describes the displacement of wild horses that may be caused by implementation of this Project. Section 2.1.1.5 includes a commitment to defer treatments in the Pine Nut HMA until after July 1.